The Builder.

VOL. XLVIII. No. 2191. SATURDAY, JANUARY 31, 1885.

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Our Timber Supplies: Present and Future.

A VERY able and exhaustive paper was recently read before the Society of Arts, on the "Present and Prospective Sources of the Timber Supplies of Great Britain," by Mr. P. L. Simmonds, whose great technical knowledge of all industrial resources renders him thoroughly qualified to deal with the subject. Dependent as we are for our timber supplies from sources outside the country, and especially in our own particular needs for building industries, a *resumé* of the principal points indicated by Mr. Simmonds can hardly fail to be useful to the readers of the *Builder*. The magnitude of the timber imports into Great Britain is shown by the fact that for the last ten years they have exceeded 18,000,000*l.*, exclusive of some 14,000,000*l.* more for the imports of forest products, such as barks, dyewoods, pulp, rosin, fibres, vegetable ivory, &c. Our dependence, therefore, on foreign supplies is a very serious matter, which is emphasised by the knowledge that other countries, as well as ourselves, have very heavy calls upon their timber resources, and that it is only of late years that a general disposition has been shown to husband those resources, and control the reckless waste of wood that has been so prevalent. The railway interests alone have made deep inroads into the forests of the globe. Over 290,000 miles of railway are now in operation, and are being added to at the rate of 10,000 miles a year; for it must be remembered that railroad ties have to be periodically renewed. The American lines alone must have consumed over ninety million trees for this requisite, and one-seventh at least of the original number has to be renewed annually. As Mr. Simmonds correctly says, the consumption of timber in all densely-populated countries is out of all proportion to the natural growth of indigenous forests, and this disproportion must infallibly increase with the population, when denser settlements will be formed in those countries whence we obtain our supplies. We are living on our capital, as it were, and it becomes all the more necessary, not only that extreme care should be used, but that every available system of forest conservation and renewal be rigorously adopted.

Roughly speaking, the available forest ground of Europe may be placed at about 728 million acres, of which Russia counts for 527 millions (by far the largest proportion) and Great Britain 2½ millions (the smallest except Belgium and Holland). Canada outstrips all Europe put together with 1,000 million acres, and the United States with a little less than that. Africa, Asia, South America, and Australasia are almost impossible to estimate with even approximate exactness, but their value can scarcely be over-rated, when we recollect that while Europe and North America are the forest supplies of what may be called the ordinary building woods,—pine, beech, fir, oak, &c.,—the other countries furnish us with inexhaustible quantities of the more decorative woods. Even in countries under the former category, such as Canada, those who are interested in forest growth are seriously alarmed at the condition to which it has been already brought by want of proper precautions. The timber industry there has for long been depressed and overstocked, while in New Brunswick it is considered that in from ten to fifteen years all the large and soft-wood timber will be exhausted, and the manufacturers will have to fall back on second growth and small woods. The principal woods shipped from Canada to Great Britain are oak, elm, ash, birch, maple, tamarac, white and red pine, the deals being both pine and spruce. The supply of foreign woods may be briefly summed up under four heads.

1. Ordinary soft woods of construction, chiefly pine and fir, furnished by North America and North Europe.

2. Shipbuilding woods, principally oak and teak, with small quantities of greenheart and mora from British Guiana, and a few Australian woods.

3. Hardwoods and furniture woods, which are at present very limited in number, although they might be largely increased by a little enterprise and judgment on the part of cabinet-makers and dealers.

4. Dyewoods, of less importance than they used to be, owing to the introduction of aniline dyes and chemical improvements.

Even amongst the shipbuilding woods we have a great deal to learn and much experimentalising to go through. Some Australian hardwoods, such as ironbark, are admitted by Lloyd's only into the ten years' classification of woods suitable for the timbering of ships, whilst mora is placed in the twelve years' grade; and yet reliable tests give to the former as good a character as the latter for shipbuilding. Jarrah, another valuable Australian shipbuilding wood, is ignored. These are examples of many instances where scientific inquiry and prolonged experience are essentially necessary.

To the third category, viz., the hard and furniture woods, we will now devote a little more attention, the rather since great and undeserved neglect has hitherto been their fate. The chief timber exports from India are teak and sandal wood; the revenue derived from the latter in the State forests of Mysore being very large. The demand for sandal-wood in Europe is inexhaustible, but it is chiefly sent from Bombay to China, where it is used for ornamental work of all kinds. Another Indian furniture-wood, though not much in demand, is the Indian black-wood (*Dalbergia latifolia*), generally called rosewood amongst timber merchants and workmen. It is sound and runs large, so that excellent slabs and planks can be got from it. What is known as Moulmein cedar is the toonwood of India (*Cedrela toona*), a furniture-wood in great request, which fetches about 6*l.* per ton in Burmah. If sent in well-squared hewn logs, about 15 in. square, and 12 ft. and upwards in length, it would fetch nearly 3s. a cubic foot, as a substitute for mahogany. In Bengal, Assam, and Burmah it grows to a very large size, trees of 20 ft. girth, and from 80 ft. to 140 ft. of clear stem, being not uncommon in forests that have been little worked, like those in Dumsory and part of the Chittagong hill districts. The Sal timber (*Shorea robusta*), for which Bengal was so famous, still exists largely in some of the forests, though there have been unnecessary destruction and irreparable waste. The Soondri trees (*Heritieria*) of the Soonderbuns furnish the best wood for boat-building. The Ceylon woods consist chiefly of ebony, sappan, satin, and sandal woods. The Cingalese forests are very extensive, and as yet practically untouched in the central province, and a proper system of conservation ought to render them permanent sources of income to the colony.

The approximated area occupied by forest trees in Victoria (Australia) is about 40,000 square miles, exclusive of 14,000 covered with Mallee "scrub," such as tea-tree and dwarf eucalypti. The principal forest trees are the large white and red gums (*Eucalyptus amygdalina* and *rostrata*) and stringy bark (*E. obliqua*). At present, however, Victoria is rather an importer than an exporter, and principally of soft woods, in which the colony is deficient. No country has been more favoured by nature than New South Wales in the variety and quality of its timber, there being twenty-seven species of the eucalyptus alone; and the durability is such that the vessels built in the colony never seem to grow old. Some descriptions of wood placed in wells and buried in the ground have been taken up after fifty years' time as sound as on the day when they were first put there. The reason why Australian timber has not met with the favour that it deserves is owing to the fact that it is so frequently felled at improper seasons, whilst the sap-vessels are full; still, moreover, sufficient

care is not exercised in sending the best sorts, or withdrawing faulty pieces from shipment. This is very much to be regretted, for a testing of seventy specimens of New South Wales woods in 1861 showed that for strength, durability, and elasticity, many of them were superior to English ash and oak. The black ironbark (*Eucalyptus eucoxylon*) is a wood remarkable for its strength, very hard, and of good colour, but enormously heavy. It is principally used by wheelwrights and coach-makers, and for many purposes in shipbuilding. The black wood (*Acacia emlanoxylon*) is an exquisite cabinet wood, having a richly-marked grain, and taking polish freely. It is of high value in all cases where lightness, combined with strength and flexibility, are required. Tulip-wood (*Harpullia pendula*) is a large tree, from 50 ft. to 60 ft. high, with a strong timber, beautifully marked with different shades, from black to yellow, and in high esteem for cabinet work. Honeysuckle (*Banksia serrata*) is a wood of a dark red colour, taking a good polish, and is useful for boat-building, and also for veneers, and generally for furniture purposes.

Queensland possesses extensive districts of red cedar (*Cedrela toona*), though of late years there has been such a wholesale destruction that the Government has passed a law with respect to the conservation of the forest. It is certainly singular that more logs of Australian cedar tree are not imported, for it is a most valuable wood, easily worked, and in dry situations very durable. Some trees have been cut on the Richmond river yielding 30,000 ft. of saleable timber. The junctions of the branches with the stem furnish those beautiful curled pieces of which the choicest veneers are made, while the root stock is also much valued by cabinet-makers for the same purpose. The market value in Queensland is from 20s. per 100 superficial feet, according to colour and size. The wood can be obtained in considerable quantities, but will soon become scarce, as it can only be procured from the open forest bushes on the coast of New South Wales, and on the Richmond, Bellinger, and Tweed rivers. In 1881-2 a few logs were received in London, and being sound and of good size, realised high prices, 4d. to 5d. per foot.

The cypress pine (*Frenela rhomboida*) is another Queensland wood from 50 ft. to 70 ft. high, with a diameter of 20 in. to 40 in. The timber is durable, fine-grained, fragrant, and capable of a high polish, being much used for wharfs and sheathing boats, as it resists the attacks of *Teredo navalis* and *Termites*. The market value in the colony is 10s. per 100 superficial feet. The brush, or bastard box (*Tristania conferta*), has a peculiar value from its immunity from attacks of white ants. The beef wood and swamp oak (*Casuarina torulosa* and *C. equisetifolia*) give close-grained woods and make handsome veneers, while rose-wood (*Dioxylon Fraseranum*) is much in favour for turning. Myall (*Acacia homalophylla*) is well adapted for cabinet-making, but is not large. The timber of the bastard sandal (*Eremophila Mitchelli*) is very fragrant and makes good veneers; but the fact is that cabinet-makers are so accustomed to mahogany and a few other woods, that they are reluctant to try any new ones.

Tasmania has not much to send us except small lots of musk-wood and the beautifully-marked Huon pine; and South Australia has so far destroyed the indigenous forests as to be obliged to plant largely. Western Australia, however, is rich in woods, particularly the white gum, eucalyptus, and jarrah, the tooart, the red gum, and the sandal wood, a scentless variety of which, called *manibon*, might be useful for wood engraving from the fineness of the grain. The indigenous forest of New Zealand is evergreen, and contains a large variety of valuable woods, though they are harder and more difficult to work than the European timber. The manuka (*Leptospermum ericoides*) has fine dark-coloured markings, and is very durable; and the birch totara (*Podocarpus totara*) is like cedar, and works with the same freedom. It is useful for piles and ship-building, and the Maoris make their largest canoes from it. The kauri is the finest forest tree in New Zealand, though it only grows in the North Island. It forms the bulk of the timber exported, and is remarkable for its durability, some of the old mission-houses, built fifty years ago, being as sound now as then. It is a rich and valuable wood for house finishing and furniture, having beautifully-mottled shading. The principal trees in ordinary use are the tawhai or black birch, very strong but tough and hard to cut; the kowhai, a red wood, used chiefly for piles but good for furniture; the matai, of yellowish hue, largely used for bridge-building; the kawaka cypress, a noble tree, with fine-grained, reddish, and heavy wood; the rimu, marked like rosewood, greatly liked by cabinet-makers; the monoao, or yellow pine, the most durable timber in the colony, posts made of it having been in use amongst the Maoris for over 100 years; the tanekaha, the wood of which resists decay in moist situations most remarkably; the rata, or ironwood, dark red, splits freely, and would probably answer well for cogs and spur wheels; the pohutukawa, of which nearly all the ship frames in Auckland are built.

Quitting the subject of heavy building woods, we must now briefly note Mr. Simmonds's remarks on the furniture woods, the principal of which, of course, are mahogany (the average consumption of which in Great Britain is about 50,000 tons), walnut, box-wood, cedar, ebony, rosewood, maple, and satin: while of minor importance are zebra-wood, ziricote, snake or letter wood, partridge, and tulip. After 1870, veneers were summarised by the Board of Trade with the furniture woods. In the United States, the chief veneering woods are curled and bird's-eye maple, beech, birch, cherry, ash, and oak. The first and most costly is what is known as French walnut, but which, in reality, does not come from France, but from Asia Minor and Persia. The tree is crooked and dwarfed, and is solely valuable for the burr that can be obtained from it. In these large tough excrescences, the grain is twisted into the most singular and complicated figures, and the symmetry and intricacy of these is one of the elements determining the value of a burr. Formerly walnut burrs were in good demand, fetching from 100*l.* to 200*l.*, but now they are in much less request, the competition being limited to pianoforte-makers. Occasionally burrs are met with in rosewood and mahogany, but they are of little value. Burrs which used to fetch from 10*l.* to 45*l.* are now only worth from 9*l.* to 30*l.*

Boxwood is chiefly used by the turner and wood-engraver, and is getting very scarce, so that continued efforts are being made to find a substitute. Rosewood is a term as generally applied as boxwood, and to as great a variety of trees in different countries, sometimes from the smell, and sometimes from the colour, of the wood. The cabinet rosewood imported from Brazil is the product of *Tacaranda Braziliensis*, and the 3,000 planks or so that come annually to Liverpool seem amply sufficient for the demand. About 4,400 logs of cedar were imported in 1884 into Liverpool from Havana, Surinam, Mexico, and Honduras. Next to walnut, ebony is the most valuable of the cabinet woods, and for a particularly fine piece 20s. per lb. has been paid, the main difficulty being to get large pieces that can be used without cutting. Prime large logs from Ceylon readily fetch 14*l.* per ton and upwards. The ebony wood of commerce, so much used for inlaying, is the duramen of several species of *Diospyros*, natives of Africa and Asia. From its hardness, colour, durability, and susceptibility of polish, it has always been held in high estimation. The commercial descriptions are generally ranged under three kinds, of which the Mauritius is the finest grained and the blackest, though it is the most costly and unsound. The East Indian is of inferior colour and coarser grained, while the African is the least wasteful, but the most porous.

The cabinet woods of Jamaica are of extreme beauty, and there is no doubt but that they would come into great demand if the difficulty of procuring them from the forests could be reduced. There are many close-grained woods, suitable for small articles, such as the blood wood (*Laplacea hæmatoxylon*), of a deep red colour; the fiddle wood (*Citharexylum surrectum*); the mahoe (*Paritium elatum*) of a blackish green colour, which makes a pretty contrast with lighter woods; the yellow sanders (*Bucida capitata*) of a light yellow with satin graining, which takes a high polish; the Braziletto, of a bright red, and much in request for ornamental work; the Yacca, also very much prized and a denizen of the Blue Mountains, where it is crooked and magnificently cross-grained. Brazil is very rich in furniture woods, as may be imagined from the fact that Prof. Agassiz counted 117 different varieties, of which the most valuable is the tortoise-shell wood (*Omphalobium Lamberti?*), found in large quantities on the Upper Amazon. Then there are the Pao Santo or holy-wood and the Saboarana, rivals of the most beautiful walnut, and of which enough is found on the Amazon to veneer all the palaces in Europe. Brazil also abounds in timber for construction, as durable as teak, and of splendid proportions. Dining-tables are often to be seen, 6 ft. in width, all made of one piece.

To sum up, it will be seen that the main sources from which we draw our main supplies of timber are the Northern States of Europe and the Dominion of Canada. From the United States and our colonial possessions we can only import in very limited quantities; and it behoves, therefore, all timber-producing countries to husband their resources, and by judicious forestry regulations to prepare increased supplies for the future demands of the world.

ARAB ART OR COPTIC?

BY REGINALD STUART POOLE, LL.D.

THE history of the art we call Arab is to be learned in its great centre Cairo.* There, and there alone, can we trace its growth, its maturity, and its decay, seeing how foreign elements came in from time to time, and were adopted and modified to suit the purposes of the Cairene architects and decorators. Its source is not to be looked for at Byzantium or in Persia, but in the ancient capitals of Egypt herself. Domestic, not religious architecture, supplies a ready proof. The models and pictures of old houses show the features of the Cairene style, which still flourished in the early years of this century. In one ancient fresco we see the stone doorway, the belvedere, the lattice-windows, the ventilators with their sloping roofs, and the inner court planted with trees, the characteristics of the modern Egyptian house, never complete without all of them. We need not, then, wonder if we find the art of Cairo to be the latest phase of the art of Egypt, which we may trace through a long series of developments, influenced in turn by Greece, by Rome, by Byzantium, by the Italy of the Renaissance, but always preserving that strong individuality which is almost as little disguised by outer forms as is the old Egyptian type of the modern Copt, although he wear the turban and ample robe of the Arab; being, indeed, far more the same man in religious conservatism, and in the subtle qualities of the official scribe.

It may be said that though the Cairo house is truly Egyptian, the mosque presents a new type. The usual ground-plan contradicts this view. The typical mosque so far is like the court of an Egyptian temple. The dome and the minaret are new features, and the constant use of the arch is a deviation, but the frequency of the arch in antiquity is to be noted, as the perishable buildings for which it was usually employed have rarely survived, and the dome is but its development. Moreover, closely connected with arch and dome are those beautiful pendentives which have their stiff prototype in the ancient "arch of approaching stones." The bell-towers of the Coptic desert-churches are not far removed from the type of the Egyptian propylæa, and the oldest minaret links them with

* Cairo is here the city, with its environs, together including the early capitals it has survived, and of which in and around it notable edifices yet stand.

Fig. 1.

Fig. 2

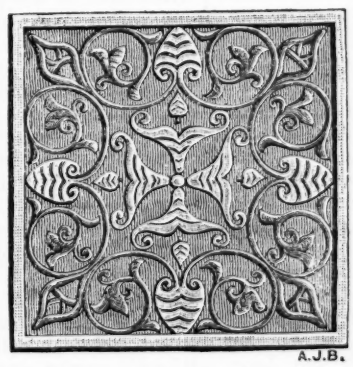


Fig. 3.

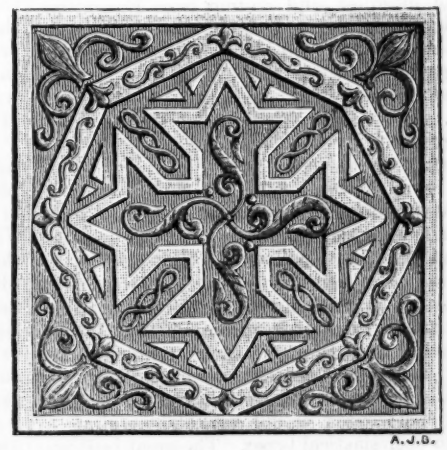


Fig. 4.

the later form. It is, however, a mistake to lay great stress upon structure, and even upon structural skill, when the essential quality of the ancient and modern art lies not in structure. That quality, so strong as to be its very character, is decorative felicity, in a harmonious use of the primitive colours for forms due to wood-carving and joiners' work, whatever the material. This is evident alike in the patterned ceilings of Theban tombs and Cairene houses, alike in the oldest and newest panelling. The ancient work, however rich in decoration, is far inferior to the modern in variety. Yet its root is the same. In the later style the lavish use of wood is as striking as its absence in what time has spared of the older, those great edifices whose very lattices were carved in stone. Yet these lattices represent woodwork. In ornament the stone panels represent wooden panels, and the stone walls of one of the earliest tombs were cased with wainscot. To trace the very patterns through the course of centuries may not be possible, and many are no doubt foreign; but any one who will compare the stone patterns of the oldest tombs with the wooden screens of Cairene mosques cannot fail to recognise certain leading outlines which have survived all internal changes.

Turning from theory to history, we note that the decorator of Cairo has always been a Copt; the architect, so far as we know, a Greek or a Copt. By the Copt the turner's work and the carving in wood and ivory have been made for generation after generation, the peculiar types fixed in the age between the fall of paganism and the Arab conquest.

To trace the history of Cairene art from the last great mosque, that of Mohammad Bey, a little more than a century old, and the fine series of houses closing fifty years later, is an easy and delightful work, which no one has yet been at the pains to do. All that is needed is to select a series of types and work back to the mosque of Ahmad ibn Tooloon, in the middle of the ninth century, taking care to find dated specimens of the obscurer periods, avoiding the exotic art of Constantinople and the far more interesting Tatar type of mosque architecture which appears about the beginning of the fourteenth century. The history of each building should be carefully studied, and the exotic elements again eliminated from a native work, or the native elements rescued from one of foreign type. Thus the fine Gothic door in the main street of the old city is not Cairene work, but the spoil of a church at Acre, carried away when the last stronghold of the Crusaders fell, and set up here as a trophy ("Modern Egyptians," fifth edition, p. 590. E. Stanley Poole's Essay on Arabian Architecture). The great dome of the mosque of Sultan Hasan, the one blemish in the magnificent Cairene sequence of domes, is distinctly Turkish. It was built by a Turkish Pasha, who replaced the original dome when it fell, adopting his national shape for structural purposes, whereas his fellow-countrymen have usually combined the finer Cairene type with their own unshapely minarets. Having thus carefully selected our typical buildings, we find in the eastern branch of Mediæval art the law of progress which the Westerns followed. We see the parallel to our own Norman, Early English, Decorated, Perpendicular, and Tudor or Jacobean, separated by times of transition. The periods are usually earlier in their beginnings, and many differ in length, yet the same law is obeyed. Until this is recognised the study of the art of Cairo or of any other Muslim centre must be not merely useless, but mischievous.

In the study of decoration we must be even more careful, first to fix the dates of later additions and next not to be misguided by apparent resemblances. The floral arabesques of the mosque of Kalaoon have a strange air of the Classical Renaissance, and that at the close of the thirteenth century. This is a mere accident, just as the battlements of the same mosque repeat in modified form a well-known Assyrian type. The difference from Italian work is to be seen in the composition both as a whole and in its fineness of line. The true Renaissance influence is detected in the lack of purpose of later architectural forms, especially windows and ceilings, and in the want of

necessary fitness in the details of decoration.

It is a long step from the date of the Mosque of Tooloon, A.D. 879, to the age of the scanty and mostly not very characteristic Roman remains of Egypt. This earliest mosque was held to offer the last foot-hold in the journey into past time, unless, indeed, we could rest for a moment in 840 at the Nilometer of Roda, but beyond, all was darkness out of which the theorists evolved the birth of art, each according to his cosmogonic fancy.

An opportune book, Mr. Butler's "Ancient Coptic Churches of Egypt," has, by the natural but as yet unthought-of process of serious inquiry, filled up the chasm and discovered the links between the Pagan and the Arab periods.* It enables us to determine the sequence of Coptic architecture and the immediate origin of Cairene decoration. The first matter needs a very careful study before we can venture on positive conclusions. The dates of all Coptic art are hard to fix, partly because of the confusion caused by the use of the Era of the Martyrs three centuries later than ours, partly because of the absolute newness of the subject. Mr. Butler has clearly shown the presence in the churches of Byzantine elements which are unknown in the mosques, or only known like the semi-dome in Turkish mosques of Byzantine parentage. When these elements are of the essence of the structure, the architectural origin of the building is, without doubt, very early, though it may be historically of later construction. The churches of peculiarly Coptic style are next in date, but their distinctness in type from the mosques again marks an earlier origin. For instance, wagon-vaulting is neither Byzantine nor so-called Arab. It is, indeed, to be seen in Persia, where it may be a survival or an accident due to the abundant use of the arch and dome. This may be observed in the very curious view of Koom in M. Dieulafoy's "L'Art de la Perse," pt. ii., pl. 1, where wagon-vaulting is combined with domes. Thus in origin the Coptic style precedes that of the mosques, and springs from Byzantino-Coptic, itself derived from the art of the basilica-churches, well but scantily represented in Egypt. How far the Coptic period overlapped the so-called Arab is hard to determine. It is probable that nothing important was executed by the Copts in church architecture after the tenth or eleventh century. That they found a wide field for their genius in mosque architecture, however rivalled by the Greeks, we cannot doubt; but it does not follow that they showed the like activity in building for their own rite. This was not necessary: more than this, it was not possible. Persecution upon persecution narrowed their resources and limited their congregations. Thus they had no chance of raising any splendid works for themselves, and the instinct of the persecuted would make them cling to the old ecclesiastical types. The great building age of the Coptic rite was the age of its comparative freedom. Their largest churches were then built, and lavishly adorned. All later work was, in architecture, not restoration so much as the more wholesome reparation. Whatever is truly of these times is decoration; the new screens and other triumphs of carved and turned work which then appear are of distinctly late development.

In ornament the difficulty of finding the true date is yet greater than in architecture. Before the time of Tooloon we are in the dark as to the movement of decorative art. But a comparison of church with mosque decoration settles the question in favour of the prior antiquity of the church style. To determine this we need not go to the earliest examples, but may compare Coptic work of churches and of mosques of any period. It must be remembered that the decorators, simple craftsmen, worked with equal skill in church or mosque. Their art went on developing to its latest phase, when their work was but little touched by the corruption of the Classical Renaissance, even to its close in our own days, the days of such of us as are old enough to have seen Cairo when she was still the most beautiful city of the East, to have lived in houses so decorated as to have needed no furniture but for use, fully furnished by the triumphs of the craftsman's skill.

Looking at Muslim decoration, whether geometric or floral, we are often struck by a want of purpose, as in the meaningless character of the centres of geometric work, even descending to a suggestion of engine-turning, and in the floral patterns, by the endless repetition of the fleur-de-lis, very charming on occasion. Sometimes the centre of a geometric pattern is a mere boss, sometimes it is empty, sometimes heavy. If we turn for a moment to church decoration, we see the centre of the geometric patterns to be the equal-limbed Greek cross, and that the floral patterns spring from a cross flory. We now understand why the best centre of the mosque work is really a saltire on a cross, and why we can perceive in delicate floral tracery the shadow of an almost effaced cross. The variety of the floral patterns in which the fleur-de-lis appears is now interpreted: they are the disconnected limbs of a cross. In the ivory-inlaid lectern at the cathedral of Cairo, reproduced in Mr. Butler's illustration (fig. 1), we note the admirable manner in which on the front, and not so strikingly on the side, the crosses form the central motives of the pattern, and render the surroundings necessary, instead of what we frequently note in work for Muslims, a servility of the centre to the surroundings in which the motive rather lies. In the portion of a carved floral pattern in ivory (fig. 2), exhibiting the decoration of the centre and one limb of a cross, everything springs from the cross which permits the use of the fleur-de-lis in a natural manner. Two other ivory carvings may be cited from the same work, one a delightful floral pattern (fig. 3), and the other a combination of geometric and floral (fig. 4), defective only in some of the minor details which are perfunctorily thrown in. If we thus find that in comparatively late times, perhaps about the fourteenth century, the ecclesiastical work shows the Christian origin of the mosque work, we cannot hesitate in concluding that the decoration of the mosques was not only by Coptic hands, but that it was of distinctly Coptic origin.

The great mosques of Cairo, the rarer private houses, and those of the kindred phase of the Delta, almost unknown, yet full of delightful hints, are fast perishing. Very soon it will be impossible to restore the history of the purest style of one half of Mediæval art. All is handed over to the destroyer, or perishes for lack of love and care. Again and again I have pressed this subject as not unworthy, nay, most worthy, of the enterprise of our young architects and the generosity of our wealthy men. To the one, I would say, Do not be content with half a grammar, but learn all, and maybe out of your knowledge shall spring an art not unworthy of our great dominion; to the others, It lies with you to furnish our students with larger knowledge, if not with a greater career. Should you send an expedition to Cairo the results will amply reward the little outlay that is needed. The treasures of the past will be saved to make the future yet more rich.

* "The Ancient Coptic Churches of Egypt." By Alfred J. Butler, M.A., F.S.A. Oxford: Clarendon Press; 1884.

NOTES.

THE wicked attempts at the destruction of public buildings which will make Saturday last a memorable day in the annals of such crimes in this country, though no doubt failing to create a tithe of the damage which was intended, have nevertheless been so nearly successful that the House of Commons has been partially wrecked, so far as a great portion of its interior fittings are concerned, while Westminster Hall itself has had a narrow escape of being blown up, and so disposing of some of the controversies of which it has been the subject within the last few months. Much of the costly woodwork of the House of Commons has been reduced to matchwood, but arrangements are in progress for temporarily repairing the damage, so that the House may meet on the 19th prox. as appointed. The fine roof of Westminster Hall has not, we hope and believe, suffered any serious injury. That the damage done in the Hall was not greater is probably mainly due to the intrepid conduct of the policeman who carried the explosive from the vicinity of St. Stephen's Crypt up the steps into the hall, though unhappily he suffered severely for his bravery. We are glad to hear that his courage has met with recognition in high quarters, her Majesty having signified her intention of conferring upon him the Albert Medal.

WITH regard to the Tower, the damage done by the explosion there, though serious enough in itself, and though subsequently added to by fire and water, has happily had no material effect on the structure as a whole, and the White Tower still continues to stand "four-square to all the winds that blow." The explosion took place on the floor of what is still called the Banqueting-hall, near the north wall of St. John's Chapel, and close to the doorway leading from the hall into the chapel. A large hole was rent in the floor of the hall, and several stacks of rifles were thrown down and scattered in great confusion, some of the arms being twisted and broken in a remarkable manner. The force of the explosion raised the floor of the Council Chamber (which is the chamber immediately above the Banqueting-hall), and did much damage to the glass cases which contained specimens of ancient Oriental armour. The force of the explosion seems to have passed through the doorway before mentioned into St. John's Chapel, for it has blown out the whole of the lead-lights of the windows, though the iron cross-bars or stays for the lead-lights were violently forced *inwards*, carrying small masses of broken masonry with them, the explanation of this being that it was due to the violent refilling of the vacuum caused by the explosion inside the building. Mr. John Taylor, of the Office of Works, informs us that, in the course of the minute examination which has been made of the walls since the perpetration of the outrage, a few slight cracks have been discovered in the masonry, but it is not certain that they did not exist before the explosion. It is earnestly to be hoped that the authors and instigators of these abominable deeds may be speedily brought to justice. In the meanwhile it is satisfactory to be assured that increased vigilance will be exercised by the guardians of our public buildings and historic monuments.

THE correspondence in the *Times* between Lord Bury and the solicitors for the Metropolitan District Railway Company, in regard to the subway under Prince's-gate, is amusing as an example of both parties putting themselves in the wrong. The subway is being made in order to facilitate access to the Exhibition building from the railway. Its effect will be to remove the crowd of persons streaming to the doors, from aboveground to underground, and thus to do away with a great nuisance to dwellers in Princes-gate or "Exhibition-road" during Exhibition time. Yet Lord Bury writes as if the whole were a scheme for adding to the nuisance, instead of one which will do much towards reducing it. He compares the ventilators which the company are opening in the middle of the road to the "blowholes" which have caused such a nuisance in other places, quite forgetting that this is not a *railway* tunnel, whence the steam and smoke of locomotives would be given off, but merely a footway for passengers who want to breathe; and he talks of one of the widest streets in London as "our narrow thoroughfare." There could not be a more typical example of the unreasonableness which possesses English householders who fancy they have a grievance. On the other, the reply of the solicitors to the company, which is perfectly reasonable in itself, is obviously open to the objection of claiming a legal right (to deviate from the intended line of the subway, under the footwalk, to one under the centre of the road) which they have not. Lord Bury is

right in law, but unreasonable in opinion; the company are wrong in law, but they are in this instance, at least, doing what will be a public benefit, and what among other advantages will probably put a natural stop to that congregation of low hawkers on the edge of the footway, to which we have before referred, and which ought to have been stopped by police interference in any case.

FROM a communication kindly sent to us by the Dean of Winchester we learn that it is proposed to restore the celebrated screen, as a memorial to the late Archdeacon Jacob. The work proposed to be done is grouped under three heads :—(1) The restoration of the stonework throughout; (2) The restoration of the cross on the existing base; (3) The placing of statues in the niches. The first item comes, we presume, really under the head of what might properly be called "repair," the two latter are restoration. It is to be hoped that the work will be carried out so as to preserve all the ancient work that is in at all an intelligible state as intact as possible. The removal of West's picture from the centre of the screen is spoken of as a possibility, not yet decided on. West was not, from the present point of view, a very powerful artist, but he marks a phase in the history of art, and his aims at least were high. We should hardly advocate the removal of his work without better reason than we have heard yet. About 5,000*l.* is needed for the work. It is not stated what architect and sculptor are to be employed.

IN his second lecture at the Royal Institution last Saturday afternoon, Dr. Waldstein did not after all get as far as Praxiteles, a considerable portion of the time being occupied in an attempt to define the origin and nature of that peculiar state of feeling constantly recurring in the history of all art and literature, and vaguely termed "romanticism." Dr. Waldstein represents it as consisting in an attempt to escape from actuality to a sentimental ideal, an ideal based on sentiment, on what might be rather than on what is. The definition hardly seems quite to cover the ground as far as sculpture is concerned; some of the works which are recognised as of the romantic school, such as the "Apollo Sauroktonos," being in fact more realistic than the sculpture of the period of Pheidias. We doubt if any one ever will define "romanticism" in a logical and satisfactory manner. Those who have studied and compared the art of different epochs feel instinctively the difference, but it is so subtle that it would be difficult for those who felt it most strongly to lay their hands on the special qualities which constitute it. In architecture we should be inclined to say it is that which departs from rule and symmetry, and aims at effect somewhat independently of structural fact. Some of the comparisons which the lecturer instituted between the casts exhibited brought out the distinction plainly enough for those who have eyes to see. A very significant contrast was between the single figure in the Sala Chiaramonti of the Vatican, believed to be either the original or a direct copy of one of the figures in the Niobe pediment of Skopas, and part of the drapery of the corresponding figure in the Græco-Roman reproduction of the Niobe group as familiar to us. The distinction is almost startling when the two are brought into juxtaposition; the later drapery is a regular piece of sculptor's "*bravura*." Dr. Waldstein made no allusion to Mr. Wood's sculptured column from Ephesus in the British Museum, so we presume he does *not* regard that as probably the work of Skopas, who is said to have sculptured some of the columns.* Dr. Waldstein concluded with an exhortation to breadth of sympathy in regard to various schools of art; difference did not necessarily imply inferiority. His third and concluding lecture takes place to-day (Saturday).

* Dr. Waldstein has since written to us to say that he considers the sculpture of the Ephesus drum to show at least the influence of Skopas, whether it be actually from his chisel or not.

A NEW danger threatens York House Water Gate at the bottom of Buckingham-street, Strand. A railway is proposed to be constructed from Charing Cross to Euston Station, which is to be carried, for the greater portion of its length, beneath the surface of the ground in the line of the proposed new street from Trafalgar-square to Oxford-street. In connexion with the railway a short street is proposed to be formed from St. Martin's-place to the Victoria Embankment, terminating near the Metropolitan District Railway Station at Charing Cross. The centre line of this street passes York Gate at a distance of about 30 ft. to the northward, and there is great reason to fear that if the street is carried out as proposed, York Gate will be destroyed. Several proposals have been recently made for the purpose of preserving the gate, and it is to be hoped that the railway company may not be permitted to sacrifice it to their zeal for increased dividends. The same railway proposes to take a portion of the disused burial-ground adjoining Whitefield's Chapel, Tottenham Court-road, and a portion of St. James's burial ground, St. Pancras.

THE Hôtel Salé, an interesting specimen of seventeenth-century work, at the corner of Rue de Thorigny, Paris, and until recently occupied by the Central School of Arts and Manufactures, is offered for sale, and, it appears, runs some danger of being demolished. The staircase is engraved in "L'Encyclopédie d'Architecture," first series, 1855, and is a very charming composition. From an archæological point of view the mansion is not without interest. The site formed a portion of the ancient *cultures*, or spade farms, of the Hospital St. Gervais, and was the last portion of the marshes of the Temple built over by Henry IV. The ground formerly belonged to the Convent of St. Anastatia, by whom it was sold, in 1656, to Aubert de Fontenay, a wealthy farmer of taxes, who built the present mansion. The arms of the founder may be seen in the balusters of the principal staircase. As the enormous wealth of the owner of the house was chiefly derived from a tax upon salt, the people nicknamed his residence the Hôtel Salé, by which name it is known to the present day. The Society of Friends of Parisian Monuments recently inspected the building, and recommended that it should be utilised as a museum, a library, or a school of art, for any of which purposes it appears to be adapted.

IT is to be feared that the ventilation of the Law Courts will never be satisfactory if each judge is to direct that his particular court is to be hotter or colder as he likes. We mentioned last week Baron Huddleston's remarks, and subsequently, as it appears, when Mr. Justice Grove joined his learned colleague there was a difference of opinion on the bench, Mr. Justice Grove complaining of the heat of the court and saying he preferred draughts to suffocation. The fact is that it is not so much the actual low temperature which vexes many of the judges as the draughts. These are a constant source of complaint, and if they were removed we should hear less of these judicial grievances. But raising a court to a very high temperature, as Baron Huddleston has done in the case of that in which he sits, is simply flying from the frying-pan into the fire. The consequence of such a high temperature is the liability to subsequent chills. If each court were kept at a certain stated temperature, as fixed by competent medical authorities, the judges and the public could not complain.

A COMMITTEE of the Glasgow Town Council appointed to revise the regulations for the construction of theatres, music-halls, and public buildings generally, have prepared a draft code of regulations which are under consideration. The regulations are loosely drawn, and are defective in an important particular, as no provision appears to have been made with a view to prevent a recurrence of the disaster which occurred at the Star Music Hall, Glasgow, by which several persons lost their lives. The loss of life was occasioned by the audience from two different levels meeting together on one of the landings of the gallery staircase during a panic. The remedy for this would be to require that separate means of egress, conducting directly into the open air, should be provided from every tier or level, and that no emergency doors should be suffered to be formed between any one tier and the intermediate landings of a staircase. By these regulations it is proposed that no place of amusement capable of containing 1,000 persons and upwards shall be allowed to be built unless sufficient access can be obtained to it from at least two streets or lanes, and this rule is proposed to be made applicable to existing buildings. In this latter respect the Glasgow regulations go beyond the regulations in force in France and Russia with regard to theatres and music-halls. The Paris regulations permit a theatre to be built as a detached or an attached building; the St. Petersburg regulations require new theatres only to have an open space upon every side with doors and windows upon each of the four sides, and in neither case are the rules with regard to site made retrospective.

THE City of Paris recently resolved to demolish a number of houses in the Rue des Filles-Dieu and the vicinity, situated in one of the most unhealthy neighbourhoods of Paris, inhabited chiefly by rag-pickers and mendicants. The owners of the property claimed upwards of 9,000,000 francs (360,000*l.*) for their interest. The City offered nearly 3,000,000 francs (120,000*l.*), and the jury awarded a sum of 213,000*l.* One of the owners received as much as 15,500*l.* as compensation, from which we may infer that the owning of unwholesome houses is not less profitable in Paris than it is in London.

THE February number of the *Art Journal*, which at its now reduced price of 1s. 6d. is a wonderful "monthly" for the money, contains an interesting and well-illustrated article on "Grotesques," by Mr. Lewis F. Day. An article on "Art-Teaching at Rugby School" gives a pleasant idea of what is being done there to stimulate a taste for and knowledge of art among the boys. The schoolboys of this generation at Rugby, at all events, need not grow up in such entire artistic darkness as that which used to enclose the mind of the British schoolboy.

SEVERAL architects have sent us, with various indignant or sarcastic comments, the following circular, sent round by a firm of contractors :—

"Dear Sir,—We shall be pleased to tender for construction, alterations, joinery, and high-class decorations.

When unusual trouble is taken, we shall be pleased to remunerate.—We are, dear sir, your obedient servants, W. B—— & Co."

Such a circular is simply an insult to those to whom it is addressed, and we hope that the authors of it will have got a good many unmistakable "back-handers" from those members of the profession whom they have taken the liberty to address in that fashion. The communication is marked "private," a sufficient indication that those who issued it knew very well they were doing what they, and any one who should accept their obliging offer, ought to be ashamed of.

Blackburn.—The new wing attached to the Blackburn and East Lancashire Infirmary was opened for the reception of patients a short time ago, without any formal ceremony. The Board of Management at their last meeting expressed themselves well pleased with the special features in ventilation and the sanitary arrangements generally. The cost of the new wing has been 3,950*l.*, inclusive of drainage and re-forming the ground, and the cost of the entrance-lodges, 350*l.* each. The architect for the work was Mr. A. W. R. Simpson, Blackburn; the builders being Messrs. Thomas Higson & Sons, also of Blackburn. The new wing gives additional accommodation for twenty in-patients, and sleeping accommodation for six nurses.

THE TOPOGRAPHICAL SOCIETY, AND AN OLD MAP OF LONDON.

"Μάψ, ἀτὰρ οὐ κατὰ κόσμον."
HOM., Il., v. 759.

FOR the earliest recorded view of London taken as a whole, we must look, if haply indeed it might be found, in the Cathedral Library at Seville. Ferdinand, nephew to Christopher, Columbus visited England with Charles V., and was at Winchester in the year 1521. Travelling through Europe during the period 1518–1525 he had leisure and means to exercise his tastes as a collector and bibliographer. Some of the books and maps he acquired, together with a catalogue in his own handwriting, are preserved in the Cathedral Library. One item of the catalogue reads thus: "Bought a map of London engraved on copper dated 1497." Until that map be recovered we have to accept as the oldest of its kind the freehand drawing which, whilst neither signed nor dated, is popularly attributed to Antony Van den Wynegaarde. That Flemish artist made several pen sketches, folio size, of notable buildings in Rome, Spain, and the Netherlands, and principally in England, when attached to the suite of Philip II. of Spain. His collected drawings first came into England about sixty years ago, to the care of Messrs. Harding, Triphook, & Lepard, the well-known booksellers, and subsequently passed to the Bodleian trustees. N. Whitlock made a reduced and finished copy of the London view, but sullied his work by introducing details at variance with the received date of the original.* Wynegaarde's work, when fully displayed, extends to more than 10 ft. in length, and is about 17 in. wide. The execution is not careful, whilst the very nature of the subject forbids accuracy of perspective or of relative distance. At the same time we there have a valuable presentment of London, ranging from Placentia (Greenwich Palace) to the King's Palace at Westminster, as it stood *temp.* Edward VI. Its most prominent features are the White Tower, the four angle turrets already capped with the incongruous cupolas retained by Wren; and the glorious spire of old St. Paul's, which as yet unstruck by the lightning of 1561, rises from the four-pinnacled tower and lifts its vane to an elevation exceeding that of any other Christian church. By the courtesy of the authorities at the Bodleian, the London Topographical Society was lately enabled to present its subscribers with a replica, in two parts, of Wynegaarde's view.

In the Crace collection at the British Museum may be found an uncoloured copy of the "Londinvm Feracissimi Angliæ Regni Metropolis," taken from the "Civitates Orbis Terrarvm," which George Braun and Francis Hohenburgh dedicated in 1572 to Maximilian II., nephew of the Emperor Charles V. Within the same portfolio are filed a few later editions, one of them, a French issue, being cut out of Belleforêt's "Cosmography." Since these differ from the first, and from one another, it should be observed that the original, in dimensions 19½ in. by 13¾ in., carries its title in a top central panel placed between the armorial bearings of the City and of Queen Elizabeth. At the sides are two tablets, containing descriptive matter in Latin, mainly relating to the Stilliards, or Steelyard,† and below stand two male with two female figures. Returning to its theme after an interval of repose, the Society, whose labours, by the way, seem to be devoted exclusively to a remote past, has just published a reprint of the Braun and Hohenburgh, again availing itself of the process employed by the Typographic Etching Company.

Though the river's bend as it flows between Westminster and Lambeth Marshes is incorrectly set out, the bird's-eye view of 1572 can be regarded as generally authentic in essential particulars. The inhabited ground comprises Lambeth, Bankside, and Southwark along the south, forming a chord to the arc which is bounded by Westminster, St. Gyles in the fyelde,—we reproduce the names as they appear,—Clarkenwell, Spitel fields, the Mynories, and the Towre precincts. Through the open fields lying beyond run such main thoroughfares as Howl burne (the modern High Holborn), Busshoppe's gate strete, the Barres from near to the Goowne fownders h^{s} (houses) without Aldgate, and what at this day is known as the Borough. The Strand is shown as a continuous line of dwellings, but nearly all of London proper lies within the City wall. At the south-eastern corner of the map by the waterside is marked a "Beere howse." This is situated (a little below the later Pickleherring stairs), exactly over against another house, also so named, upon the opposite bank of the river Thames just outside the Tower Iron Gate. In the corresponding corner to the west appear Lamberth and the Slawghter howse, this latter being the abattoir appertaining to the royal palace of Westminster, at the outlet of the former ditch or race, which, serving the Abbot's Mill, is now represented by an effluent of the Aye Bourne running in a sewer beneath Great College-street. A short distance down the Thames are marked the Quene's bridge (or stairs), Stehar Chamber, Chanoy row, the Corte, and another Beere howse. The last-named undoubtedly corresponds with the Buttery at Whitehall, to whose dismantled remains we recently directed attention.* Barnard's Castle is styled Benam's Castle; in fact the whole nomenclature of this map is well worthy of study.

We have alluded to the comparatively small space covered by the ordinary dwellings. Not yet has begun that rapid outgrowth of buildings, principally to the northern and western quarters, against whose increase Queen Elizabeth herself and her successor on the throne issue their neglected edicts. Looking at Braun's and Hohenburg's picture one is forcibly reminded of the greatest crisis in the history, topographically speaking, of London. We at once see more graphically than mere words could demonstrate how, had the Great Fire then raged, very little of the town would have escaped. For laying waste a portion which is equal to the joint areas of the Green and Hyde Parks the conflagration consumed the whole heart of the city which is delineated in the picture under review. Again, we see at a glance how, with one or two notable exceptions,† poorly provided were the parish and conventual churches with towers or steeples. But with the Great Fire Sir Christopher Wren found an opportunity such as no architect had ever enjoyed before. What he might have done, unfettered and uncontrolled, it were idle to conjecture. What has been done since it were as painful to recall, but one thing is certain, that to him and him alone the City owes a charm and a beauty so distinctive and yet so varied that even the most vaunted of all other European capitals must acknowledge their inferiority.

Of other and even older views it will be sufficient to mention the illustrations in MS. copies of Matthew Paris's work, dated 1236, at the British Museum and at Corpus Christi, Cambridge; as well as the miniature painting (1418) which represents the Duke of Orleans as a captive in the Tower. These three views were produced in facsimile by J. West. There is also the co-eval painting at Lord Egmont's monastic seat of Cowdray, in Sussex, wherein is delineated the procession of King Edward VI. from the Tower to Westminster, on the 19th of February, 1547, previously to his coronation. That painting, 50½ in. by 22 in. in dimension, J. Basire engraved for the Society of Antiquaries in 1787. To them may be added the diminutive foreign map, only 4¾ in. by 3½ in., by Francis Velagis, from a book entitled "The Cities of the World," formerly in the Wellesley Collection and now in the British Museum. These, however, are valuable rather by reason of their antiquity and intrinsic excellence than for the trustworthiness of their details.

* Circa 1550. It distinguishes the Protector Somerset's mansion.

† A corruption of Staelhof or Stafelhof, *i.e.*, staple-house. Its site is covered by the Cannon-street terminus of the South Eastern Railway.

* The *Builder* (Aug. 9th, 1884), vol. xlvii., pp 187-8.

† For instance, the towers and spires of St. Lawrence Pountney and St. Dunstan's-in-the-East, with the towers of St. Mary Somerset, St. Mary-le-Bow, St. Mary Spital, St. Mary Aldermary, and St. Michael Cornhill. These are still more conspicuous in Aggas's map and in Hollar's delightful little etchings from the fields about New River Head.

British Museum Lectures. — Professor Hodgetts, whose lectures in the Anglo-Saxon room last year were noticed in our pages, will commence shortly a course of six lectures in the British Museum, on the following subjects:—"The Normans," "The English," "The Monk," "Armour," "Civil Dress," and "Sports and Pastimes." The lectures will be given at two p.m. on successive Friday afternoons, commencing February 20th.

ROYAL BADGES.

SECOND only in importance to the Royal Arms (of which we gave a slight sketch in a former number, p. 115, *ante*), come the personal cognisances of our kings and queens, devices that each one adopted as he or she thought fit, and to any amount,—a liberty that some of our sovereigns freely availed themselves of by taking a round dozen to their aid.

The derivation of the word "badge" is a moot point, and Mr. Lower has given the *pros* and *cons.* in dispute in his "Curiosities of Heraldry," to which we cannot further refer.

The badge is at least as ancient as the shield of arms, and was borne on the breasts of retainers as the more simple device, and it has furnished many a public-house sign; to wit, the "White Hart" of Richard II.

In this brief article it would be impossible to enumerate all the royal badges, and we can only glance at a few of the more celebrated ones: those of York and Lancaster alone form two chapters in "Planché's Pursuivant," and are of great interest.

The "Plantagenista" is about one of the earliest that we are acquainted with, and, at the same time, one of the best known as the punning device of the Plantagenet kings, in our language it is the broom plant.

Richard I. used a star rising from a half-moon or crescent, to typify the triumph of the cross over the infidel, and this was retained by King John, his most unworthy brother.

The far-famed and most familar Prince of Wales plume was first borne by the Black Prince, but its origin is doubtful.

Richard II., in his better days, bore the "sun in splendour,"—too soon to be changed for the light of day behind a cloud; he also bore the well-known white hart, with several others.

The white swan of Henry IV. is equally familiar to us in its present use as a public-house sign. The boar of Richard III. is a notorious royal badge.

We now come to the portcullis of Henry VII., derived from the Beauforts, and perhaps no royal badge will be more familiar to an architect than this one, and, in our judgment, none seems better adapted as an ornament to a building, and it has certainly been made the most of in his chapel at Westminster, in conjunction with the Tudor rose. So profusely do the Tudor badges adorn the architecture of this period that one writer claims for it the title of "the Heraldic period," instead of the Perpendicular style.

Henry VIII. appears to have continued to use his father's badges, and his numerous wives adopted their own devices, the pomegranate of Catherine of Arragon being the most familiar.

The next three sovereigns bore Tudor roses, to which Elizabeth added a crowned falcon and sceptre, with the motto, "Semper Eadem," and a most inappropriate one it was.

James I. introduced the Scottish thistle, and sometimes bore it in conjunction with a rose crowned, and this appears to have been the last original badge borne by English monarchs, if we except the rose-branch and thistle (growing from one branch) of Queen Anne, and with this last of the Stuarts personal badges ceased to be used by the reigning monarchs, and the plume of the Princes of Wales is all that is left to us of the numerous tribe.

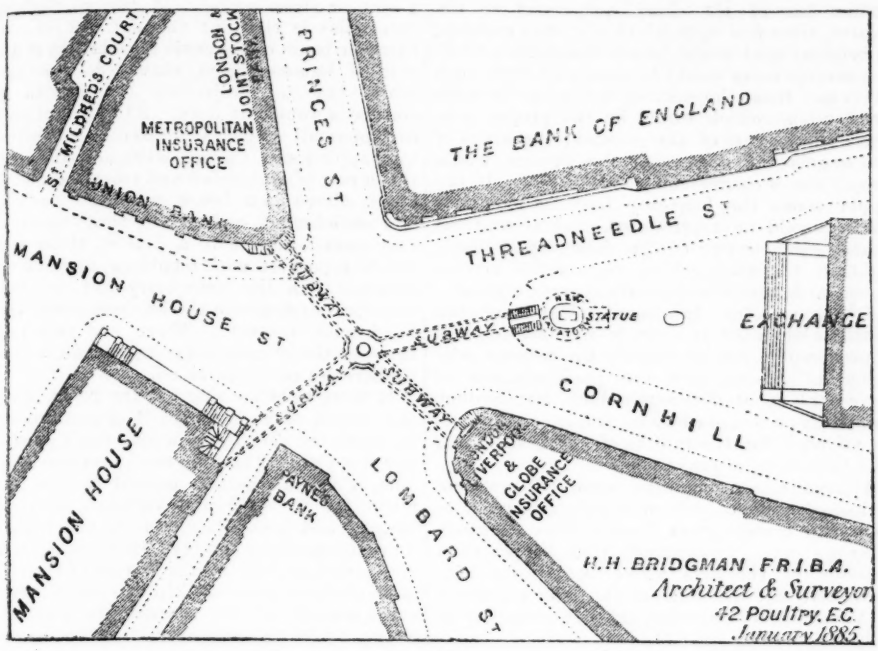
Some fine examples of this ostrich plume are to be met with at Peterborough, Worcester, Ludlow, Exeter, and St. Albans.

The "collar of esses," so constantly met with on the effigies in our old churches and cathedrals, is a badge of the house of Lancaster, and the origin of the S is a matter of dispute, but it is generally supposed to represent the word "Soveraygne," the favourite motto of Henry IV.

The corresponding collar of the House of York is made up of suns and roses alternate, but, perhaps, it is not so familiar as its rival.

With the extinction of the feudal system the bearing of badges has gone out, and with it a most important landmark in our country's history has disappeared, and the means of fixing the age of a building, and in many cases the determining the *founder* of it.

Liverpool.—The offices of the Toxteth Park Local Board, Liverpool, are being altered, from plans prepared by their surveyor, Mr. John Price, Assoc. M. Inst. C.E., the tender of Mr. John Carruthers, of Lucerne-street, Toxteth Park, having been accepted.



Plan of Proposed Subways in the City.

PROPOSED SUBWAYS AT THE MANSION HOUSE.

THE annexed cut shows the lines of the subways for foot-passengers which were proposed recently to the City Commissioners of Sewers, and which were referred to the Streets Committee for a report and estimate. The plan is devised by Mr. H. H. Bridgman. In regard to the advisability of the scheme it may be observed that for many years past it has been a very difficult matter for pedestrians to make progress at all in that immediate locality in consequence of the very large concentration of vehicular traffic from all directions, and where the pedestrian traffic is greater than at any other point in the metropolis. In 1860, during nine busy hours of the day, 56,235 people crossed over on foot between the vehicles and under horses' heads, a rather trying task for the strongest and bravest, but for a considerable number a matter of great difficulty and danger. King William-street, by the statue, comes next in this respect, where 42,935 crossed over. During the twenty-four hours of the day, however, a total number of 84,352 persons crossed over at the Mansion House intersection, and 63,592 at King William-street, which is equal to totals of 27,279,416 and 20,565,632 respectively, and the greater part of these enormous crowds have to cross over between the vehicular traffic, which is stopped every few minutes to let a stream of pedestrians across, and so on throughout the day. This necessarily causes considerable delay in the traffic, while at the same time foot-passengers are waiting in groups at every corner to cross when an opportunity occurs. There has been a general increase in the pedestrian traffic of the City during the past twenty-five years of 29 per cent., so that at the present time there is crossing over daily in the manner previously described at the Mansion House 108,814 people, or a total of 34,080,545 during the year, allowing for one-fifth of the traffic on Sundays. The vehicular traffic in the principal streets of the City has increased far more rapidly. From 1850 to 1865 it increased at the rate of 50 per cent., but the increase has not been so great in recent years. In the year 1873, 9,225 vehicles passed into and from the Bank through the Poultry alone, and at the present rate of increase 1,106 vehicles pass the Poultry daily. The total number of vehicles, however, passing the Mansion House and Bank centre daily is estimated at 54,989 or 17,222,555 per annum. It is difficult to understand figures without comparisons. In 1866, of vehicles passing along Oxford-street, over two-thirds of the same number (6,800) passed along Prince's-street by the Bank daily, and whilst over Westminster Bridge (where there is a larger traffic than at any other point outside the City boundary) there passed 11,609 vehicles daily; yet the number passing along Cheapside, by Milk-street, every day was 13,016. These figures speak volumes in favour of the urgent necessity of some greater facility for crossing at that point. The proposal is to construct underground, in the centre of the several roadways in a line with Princes-street, a circular chamber, about 20 ft. in diameter, with an 8 ft. skylight at the top, for light and ventilation. Around such skylight, at the street level, would be a footway left, 6 ft. wide, as a refuge, protected by a kerb and posts. in lieu of the inadequate small refuges. From the circular chamber beneath would radiate subways (1) to the Union Bank corner, by Princes-street (the projecting property having been recently bought by the Commissioners of sewers, for the purpose of widening and improving Mansion House-street; (2) to the north-east corner of the Mansion House basement; (3) to the open space in front of the Exchange, by the Wellington statue; and (4) to the Globe Insurance Office corner. At each of these points access by means of a flight of steps would be gained to the several subways, all of which would be lined with white glazed bricks, with name-plates fixed to the walls at the central chamber, indicating where the subways lead to. The subways would be amply ventilated, and lighted by means of the electric light, a preliminary contract having been just entered into with one of the electric light companies for the purpose of lighting the immediate locality, so that the cost would not be great. Policemen would be stationed beneath, and gates be placed at the entrances, which would be closed at night.

The last suggestion does away with one objection to subways, the liability of their becoming lurking-places for dangerous or disreputable characters. The practical difficulty will be with regard to sewers and gas and water mains, and this is matter for special examination and report. That such an underground crossing would be an immense convenience, and remove what is to a certain extent a source of danger, there can be no doubt; and the removal of the pedestrian traffic from the surface would lead to some little acceleration of the vehicular traffic, as vehicles are stopped at intervals now by the police to allow of pedestrians crossing.

THE PARISH CHURCH OF ST. MARYLEBONE.

VISIT OF THE ARCHITECTURAL ASSOCIATION.

ST. MARYLEBONE (like St. Pancras) possesses two parish churches, the old and the new. When Tyburn Church was rebuilt in 1741 on the side of the former edifice, it was dedicated to the Virgin by the name of St. Mary-le-Bourne, now Marylebone. It is situated in the High-street, and is the mother church of the manor and parish. St. Marylebone New Church is situated a little to the north of the old church, on the south side of the Marylebone-road, opposite York Gate, Regent's Park, and was designed by Mr. Thomas Hardwick, a pupil of Sir William Chambers, and father of Mr. Philip Hardwick, R.A. This was the church selected by the members of the Architectural Association for their first Saturday afternoon's visit this session, on Saturday last, the 24th inst. The portico faces the north, "a peculiarity," says Peter Cunningham, "in some measure forced upon the architect by the nature of the ground selected for its erection." The first stone was laid July 5th, 1813, and the building consecrated February 4th, 1817. The total cost was about 60,000*l*. The altar-piece of the "Holy Family" was presented by the painter, Benjamin West, P.R.A.

The members assembled in the nave of the church at three p.m., and were received by Mr. Thomas Harris, architect, of Gray's Inn, who has been superintending the execution of very extensive alterations and additions, and also by Mr. G. Constantine, who has been officiating as clerk of the works. After explaining the drawings, Mr. Harris proceeded to show the members what is being done to the building. Some lithographic sketches of the interior were handed round, entitled "St. Marylebone Parish Church, as it appeared, May, 1883." At that time a contract was entered into with Mr. Edward Conder, builder, for 11,353*l*., who is executing the work; the contract for heating apparatus in the basement being completed by Mr. Stainton, of 26, Liverpool-street, King's-cross. The whole of the stained glass and decorations are by Messrs. Campbell, Smith, & Campbell; and all the marble and mosaic work is by Messrs. Burke & Co., the wood carving being by Messrs. Daymond & Co. Altogether the several contracts and extra works when completed would, Mr. Harris said, cost about 24,000*l*. The principal alteration consists in taking down the south wall of the church, usually occupying the east end, and throwing out a large circular apse, at once giving the interior a bold and imposing effect. The old pews and seats have been removed, and new ones of Honduras mahogany substituted, French polished.

The sedilia and choir-stalls have been executed by Mr. Walden, of Maiden-lane, Covent-garden, and the reseating of the nave by Messrs. Lascelles & Co., of Bunhill-row, who have also executed the external concrete facings. The organ is by Messrs. Gray & Davison, of Euston-road; the carton-pierre work by Messrs. Jackson & Sons; and the lectern, gas-standards, and gas-fittings generally by Messrs. Richardson & Co., of Brownlow-street. The cushions and mats for the use of the sacrarium have been embroidered in colours by ladies of the congregation from designs by the architect. Besides the addition of the semicircular apse at the end of the nave, a new clergy vestry and a strong-room have been added. These works, Mr. Harris said, have been designed to harmonise with the old structure, and are so planned as not to alter or interfere with any of its main external features.

The whole of the upper side galleries have been removed. The old altar-piece by Benjamin West is now placed in the new clergy vestry. The body of the church has been repaved with Comblanchien and Rouge Royal marbles in chequers, the old marble font being refixed in its former position. The iron columns supporting the lower galleries have been cased with wood, as Ionic columns on bases level with top of benches.

The new screen walls have a podium up to the gallery ceiling level; these are enriched with fluted Corinthian pilasters, and are pierced with openings into the wings. The large arched opening on the left contains the organ front and screen. An enriched Corinthian entablature, surmounting the pilasters of screen walls is carried all round the church in place of the old unsightly cove.

The ceiling has been enriched with moulded ribs. That portion over the choir and a wide border round the main ceiling being panelled, and the portion over the choir and elsewhere slightly relieved with carton-pierre enrichments. Adjustable flaps are arranged in the roof, in connexion with the pierced moulding round the large central space, to assist the ventilation.

In the left-hand wing the alteration consists of a re-arrangement of the stairs from the vestibule to the gallery and to the vaults, and the formation of a verger's room.

The marbles used in the pulpit and screen are,—Pulpit, rouge royal, Siena, Joinville, Comblanchien, and alabaster; Screen, rouge royal and alabaster, circular panels, Joinville, inlaid with white marble.

The stalls are panelled and enriched with

carving, four of the ends having angels with musical instruments. The sacrarium occupies the whole of the apse, and is raised two steps above the level of the choir, from which it is separated by a marble balustrade. The floor of the sacrarium and choir is paved with mosaic, the altar-space being two steps higher than the adjoining floor level, and 2 ft. 4 in. higher than the floor of the nave. There are four windows to the apse, two on either side of the reredos. A domical roof surmounts the whole, ceiled with fibrous plaster, and divided into five compartments by moulded ribs.

A plinth and surbase of marble line the walls 5 ft. high, above and up to the window-sills being filled with marble mosaics, representing emblems of the four Evangelists, angels, cherub-heads, &c. The credence-table is of carved marble, and the sedilia panelled and carved. A prie-dieu is placed in front of the sedilia. The altar-table is of wood, having a mosaic frontal in marble frame. The subjects in the panels are connected with the Passover.

The reredos embraces the whole of the middle bay. The front pilasters are carved in low relief, with arabesques symbolical of the Resurrection. The marble entablature continues round over the reredos with a carved pediment, the tympanum being enriched with cherub heads.

The four windows of the apse are filled with painted glass, forming, with the Crucifixion, a series of five subjects connected with our Lord's life on earth. The windows of the apse were presented by Mrs. Waller; six of the painted subjects between the nave windows by Mr. E. Armitage, R.A.

There was another meeting at the church on Wednesday last, when many members of the committee and the architect attended to point out to those invited the chief points in the alterations.

The reconsecration of the church will take place this day (Saturday, Jan. 31st) by the Bishop of Bedford.

Illustrations.

DESIGN FOR THE DECORATION OF THE DOME OF ST. PAUL'S CATHEDRAL.

BY JOHN P. SEDDON, ARCHITECT.

MR. SEDDON, in the course of the recent discussion upon the paper read about the decoration of the Dome of St. Paul's by Mr. Stannus, at the Royal Institute of British Architects, contended that all the designs yet brought before the public, being based upon sub-division of the dome by vertical ribs or circular panels, involving more or less sham architectural details beyond the real ones provided by Sir Christopher Wren, were wrong in principle. Such features, in themselves inadmissible, disturbed the serenity of the surface of the dome which Wren had not broken up; and, in the case of the vertical ribs, they introduced a Gothic aspiring tendency instead of the repose appropriate to the Classic architecture of St. Paul's, and, in the case of the circular panels, they produce a *petite* and confused effect. He called attention to the picture by Sandro Botticelli in the National Gallery as affording an example of fit and proper treatment for the decoration of such a dome by means of subdividing it by horizontal zones alone.

The accompanying drawing was made from Mr. Seddon's sketches and directions during the fortnight that had elapsed between the date of the reading of Mr. Stannus's paper and the adjourned discussion thereon, by Mr. H. G. Murray, an artist in the employ of Messrs. Belham, of 155, Buckingham Palace-road, who had been his (Mr. Seddon's) pupil in decorative art.

In this design the surface of the dome is subdivided horizontally into three zones of figures representing seated saints, prophets, and martyrs, with attendant angels standing behind them. The disposition of these figures is in accord with the spacing of the architectural supports below, with groups of angels concentrated over the eight principal piers, so as to emphasise them and avoid monotony in the arrangement. This treatment would be further accentuated by colour; the figures above the piers being clad in white to render them more prominent than the rest.

In tone of colouring Botticelli's picture would afford much help, as in the lustrous subdued golden hue of the cloud-background of the figures, from and upon which the stars and rays in brighter gold would detach themselves, while the several zones would be separated from each other and from the cornice below by the quiet greyish-blue which would be the proper contrast to the rest of the ground; the wings of the angels and dresses of the figures would supply the stronger colouring needed. In the upper zones the heavenly host and angelic choirs would be represented, and around the central circle or eye of the dome, symbolising light or the sun, golden rays would stream downwards towards the several groups below.

Of course the treatment thus somewhat hastily elaborated is open to modification and improvement; but as regards the general principles of design, and the predominance of horizontal zonal divisions which Mr. Seddon maintains to be appropriate, ample scope would be afforded for the talents of the able artists who have been engaged.

The question, at any rate, is one that must not be looked upon only from a painter's point of view, and certainly not from a false architecturesque one. It demands that proper combination of the arts which constitutes true decorative art, which, from the long severance of Architecture, Painting, and Sculpture, seems to have been lost sight of.

The illustration is reproduced from the coloured drawing by Messrs. Boussod & Valadon's (late Goupil & Co.) phototype process.

THE HOLBORN RESTAURANT.

WE illustrate this week two views of this restaurant.

One view shows the front towards Holborn of the block which has now for some time been erected; the interior arrangement of which is so well known that we need not now describe it.

The other view shows the front towards Little Queen-street of the block now to be erected, forming as it does the eastern annexe of the restaurant. The ground-floor will contain the new grill-room, 70 ft. by 50 ft., and the upper stories will be devoted to private dining-rooms to accommodate parties of from twenty to fifty persons. The upper part of this front has been set back to avoid litigation with the owners of property on the opposite side of Little Queen-street.

It will be seen that, to carry out the entire scheme of the promoters of this restaurant, the eastern corner of Little Queen-street must be taken in, and, as soon as the leases of that block fall in, the premises will be pulled down and the new work proceeded with, thus completing the building.

The buildings now illustrated have been and will be carried out from the designs of Messrs. Archer & Green, Mr. Holloway acting as the superintendent of works.

THREE SUFFOLK ROOFS.

THE three roofs illustrated in this week's issue were sketched during the Architectural Association's visit to Bury St. Edmunds and neighbourhood last August, and are certainly among the most interesting examples seen on the excursion. They all three have the alternating trusses varied, but with that single feature their similarity ends.

The roof at Ixworth is over the chancel, and the main truss is of a collar-braced construction, the arched brace coming down on to a small hammer-beam, the hammer-brace resting upon a small octagonal shaft with moulded cap and base worked out of the wall-piece, and carried by a moulded and foliated stone corbel. The intermediate is collar-braced also, but has the hammer-beam omitted, the arched brace finishing directly on to the octagonal shaft and corbel. The spandrels, filled with delicate tracery, have a very rich and pleasing effect. The cornice has the usual square four-leaved flower in a hollow, and is embattled, but above that again is some effective pierced work. The ridges, purlin, and truss appear to be well moulded, but the rafters are left square.

Hawstead nave roof is of a flatter pitch, and has heavier timbers, giving it a much more substantial appearance. The main truss has a four-centre arched brace resting on a hammer-beam, carved as an angel, with wings slightly spread, and the hammer-brace finished on a stone corbel, moulded and carved as a head or mask. The intermediate has a larger four-centre arched brace coming down directly on to a similar stone corbel. A curious feature of this truss is that, at the same level as the hammer-beam of the main truss, there is a rude sort of hammer-beam carved on the arched brace, but not projecting beyond it. The cornice is unusually deep. At the bottom is a row of small shields separated by a continuous overlapping and zig-zag label or band; above this a row of quatrefoil and traceried piercings edged above and below with the strawberry leaf enrichment, and above that again large four-leaved flowers in a hollow, these enrichments separated with moulding, and the whole crowned with the strawberry-leaf enrichment. The sprandrels above the hammer-beam are not filled with tracery. There are two purlins between the ridge and cornice, and all the larger timbers are richly moulded.

If there were nothing but the roofs to see at the church of St. Andrew, Mildenhall, it would be worth the exertion of a long day's journey to pay it a visit. Those to the aisles are remarkable, if not altogether beautiful, that on the north for its bold and vigorous carving of dragons and grotesques, that on the south for its richly-moulded timbers, traceried spandrels, and carved angels, but *the* feature of the church is its glorious nave-roof. In this the alternating arrangement of the trusses is particularly happy, as the appearance of crowding, so noticeable in some of those elaborate roofs where the trusses are not far distant from each other and every one a repeat of its neighbour, is here entirely absent; there is richness, but there is repose also, for, where the intermediates finish, at the cornice spring out large and beautifully-carved angels, "hovering" as it were, their wings outspreading and catching the play of light here and there from the windows which are directly under them. The roof itself is rather flat-pitched, and the beam of the main truss cambered beneath it is a deep four-centre arched brace dying into the wall-piece and resting on a stone cap, the shaft coming down to the ground; over the centre of the beam and springing directly from it is an arch, the spandrels on either side being filled with tracery, as are those below also. The beam and cornices are similarly enriched with the square flower, embattlements, small angels alternating with large carved paterae and the strawberry-leaf running all round as the crowning member. The lower edge of the intermediate and of the curved brace has a square flower in a flat hollow, and all the larger timbers are well moulded. Neither sketch nor description expresses the beauty of this roof, but perhaps they may tempt one or another to make the long day's journey as opportunity occurs.

THOMAS GARRATT.

HÔTEL DE VILLE, DINANT.

THE Hôtel de Ville was erected in the commencement of the seventeenth century, on a part of the walls and a turret which had escaped demolishment in the sixteenth century, when Dinant was taken by the French under the Duc de Nevers. The bow-window, &c., and roof are evidently of later date, and were probably added after the unfortunate town was again taken by the French in 1673, when no doubt it again suffered partial demolishment. The building is now entirely yellow-washed over.

R. A. BRIGGS.

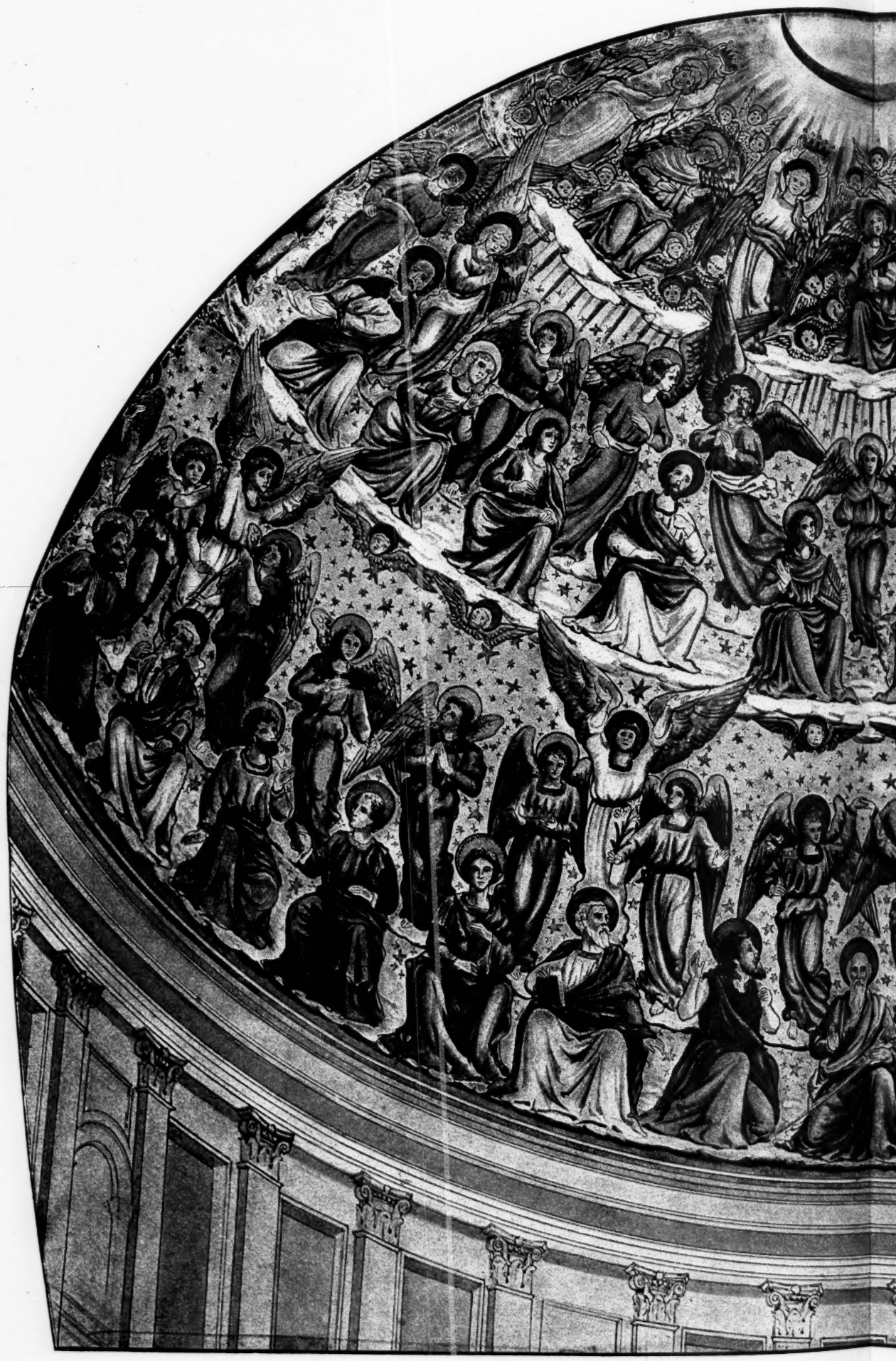
THE SURVEYORS' INSTITUTION.

PRELIMINARY EXAMINATION, 1885.

OF the Candidates who presented themselves at the Preliminary Examination of the Institution, held on the 20th and 21st inst., the following satisfied the Examiners:—

Archibald, C. F.	Lumley, J. A.
Beard, E. T.	Mann, J. B.
Bensley, O. E.	Mann, R. B.
Brown, W. E.	Mathews, J. M.
Buss, F. G. W.	Newton, F. J. C.
Champion, L. C.	Nicholson, E.
Chew, H. V.	Nockolds, M. C. H.
Coales, H. G.	Parry, R.
Crokat, E. A.	Paterson, H.
Eves, W. L.	Pratt, P.
Fitzhugh, W. R.	Rand, J.
Goodman, P.	Robinson, A. W.
Gough, G. S.	Selby, F.
Green, T. J.	Smurthwaite, W. J.
Harding, R. B.	Varley, T. E.
*Jenkins, H. L.	Vaughan, E. B.
Jonas, S. M.	Webb, F. N.
Jones, F. H.	Wilkinson, G. H.
Lloyd, W. R.	

* Passed at head of list.



DESIGN FOR THE DECORATION OF THE

FOUNDED ON THE PAINTING BY SANDRO BOTTIC

BY JOHN P. SEDDON

Elaborated and Drawn by H. G. MURRAY, *Artist at* MESS

THE DOME OF ST. PAUL'S CATHEDRAL,

NDRO BOTTICELLI IN THE NATIONAL GALLERY,

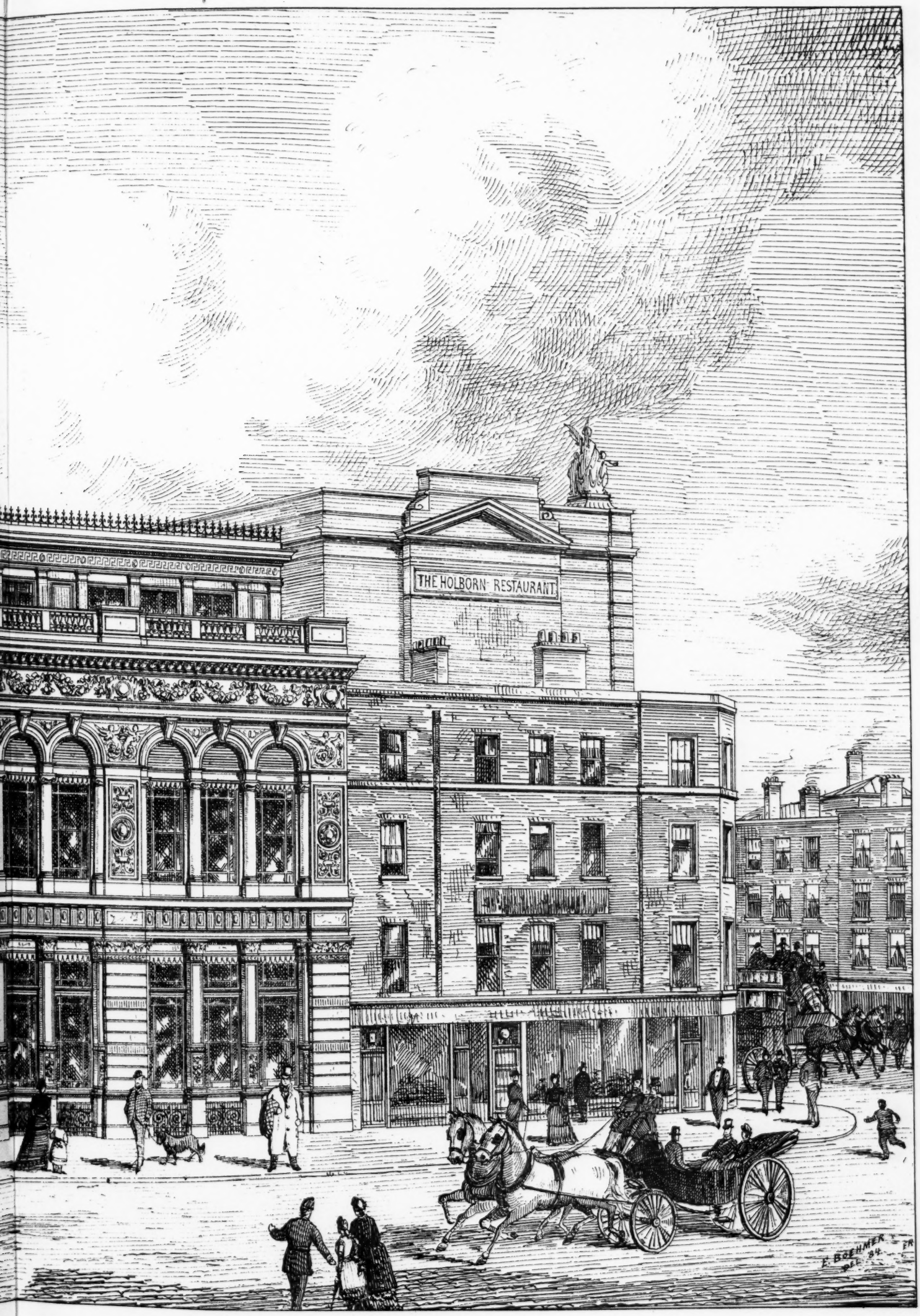
. SEDDON, ARCHITECT.

rtist at MESSRS. BELHAM'S, 155, *Buckingham Palace Road*,

PHOTO LITHO SPRAGUE & Co LONDON

ADDITIONS TO HOLBORN RESTAURANT,

ELEVATION TO LITTLE Q



GRANT, Messrs. Archer & Green, Architects.

LITTLE QUEEN STREET.

PHOTO LITHO SPRAGUE & Co LONDON

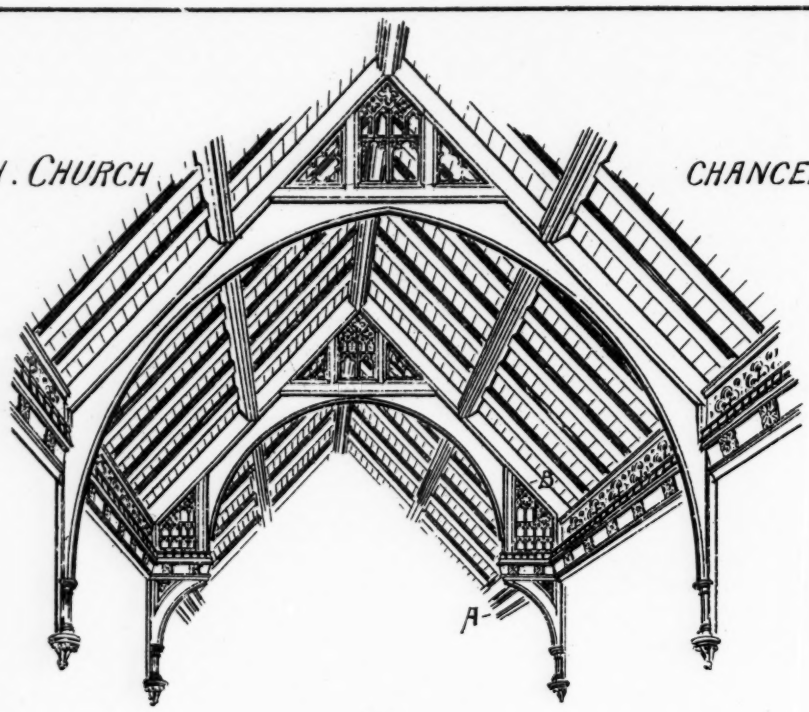
HOLBORN RESTAURANT, MESSRS.

ELEVATION TO HO

ESSRS. ARCHER & GREEN, ARCHITECTS.

N TO HOLBORN.

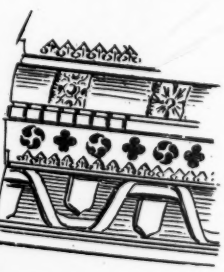
IXWORTH. CHURCH CHANCEL ROOF.



CORNICE. A.

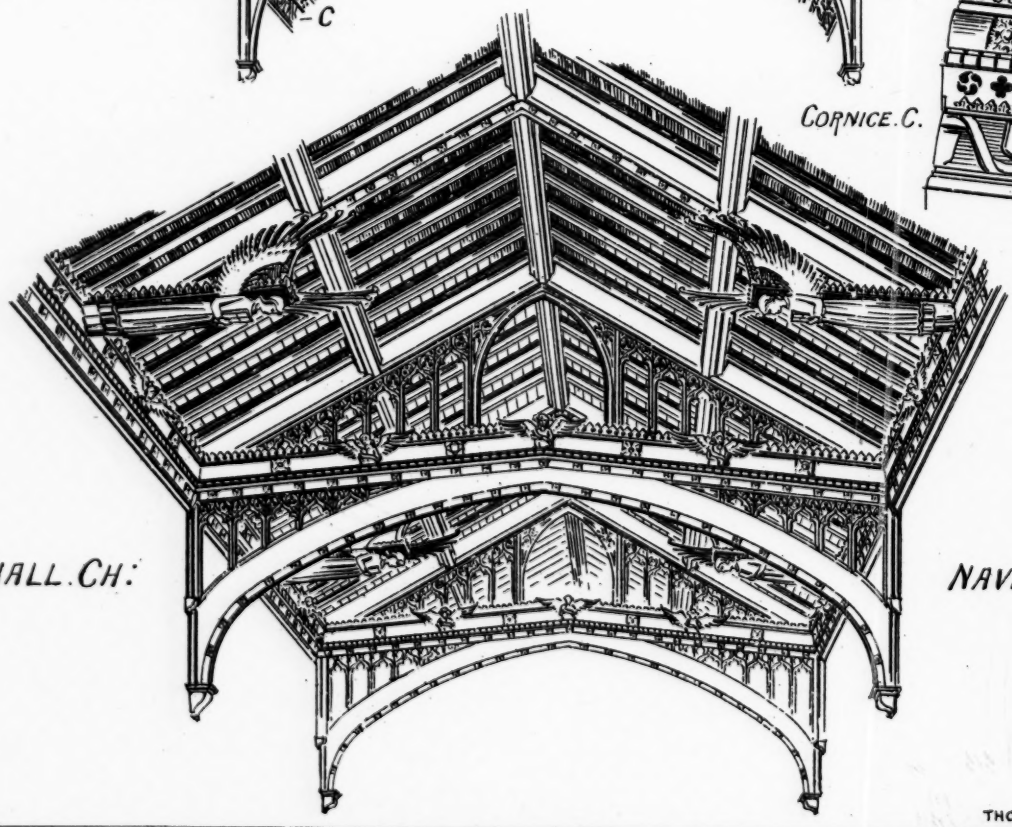
SPANDRIL: B.

HAWSTEAD. CH: NAVE ROOF.



CORNICE. C.

MILDENHALL. CH: NAVE ROOF.

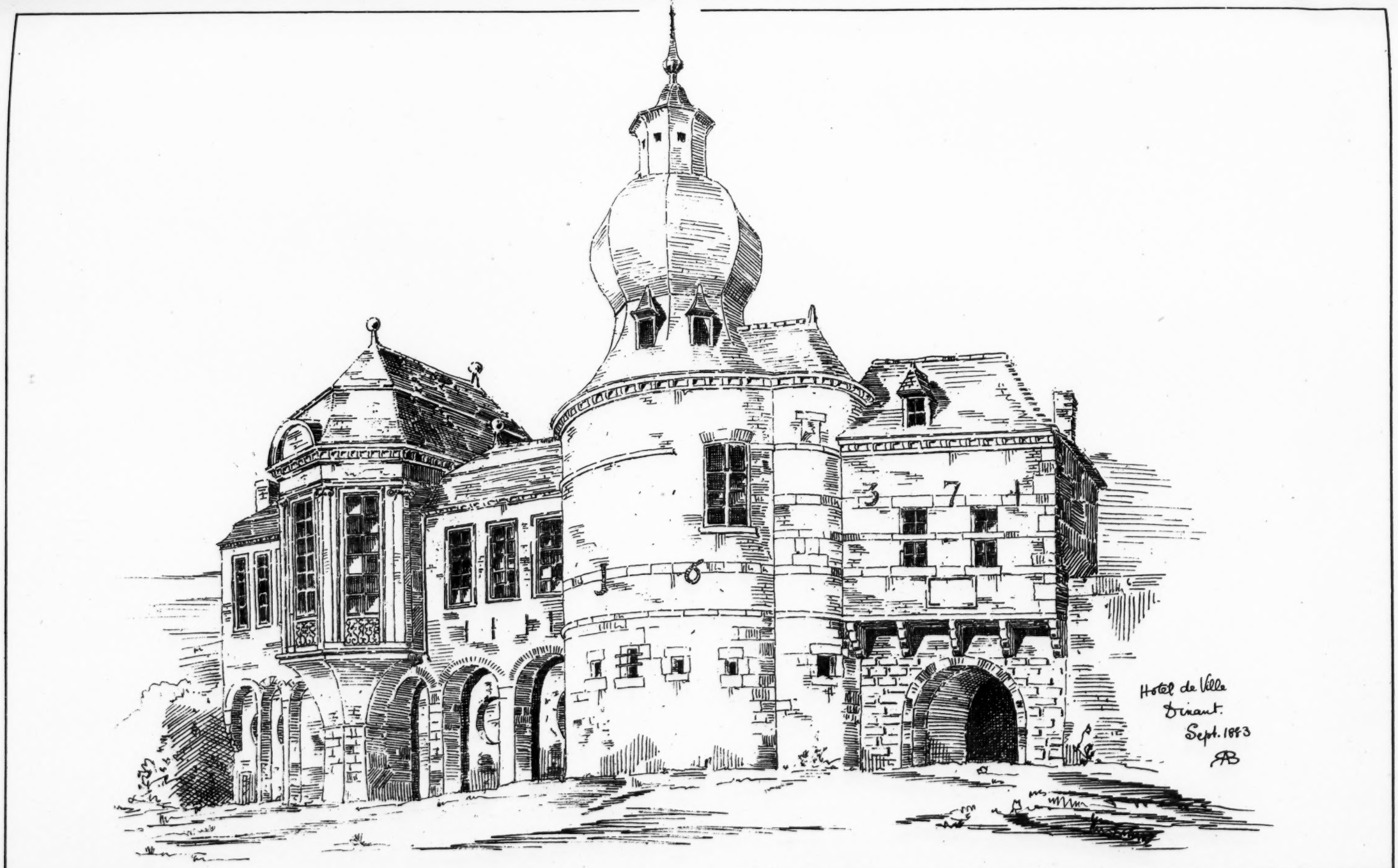


THOS: GARRATT. DEL. 1884.

Wyman & Sons, Photo-Litho. C^t Queen S^t London, W.C.

ROOFS OF SUFFOLK CHURCHES.

Sketched during the Architectural Association Excursion, 1884, *by* MR. T. GARRATT.



Wyman & Sons, Photo-Litho. C^t Queen S^t London, W.C.

HÔTEL DE VILLE, DINANT.—Drawn by Mr. R. A. Briggs.

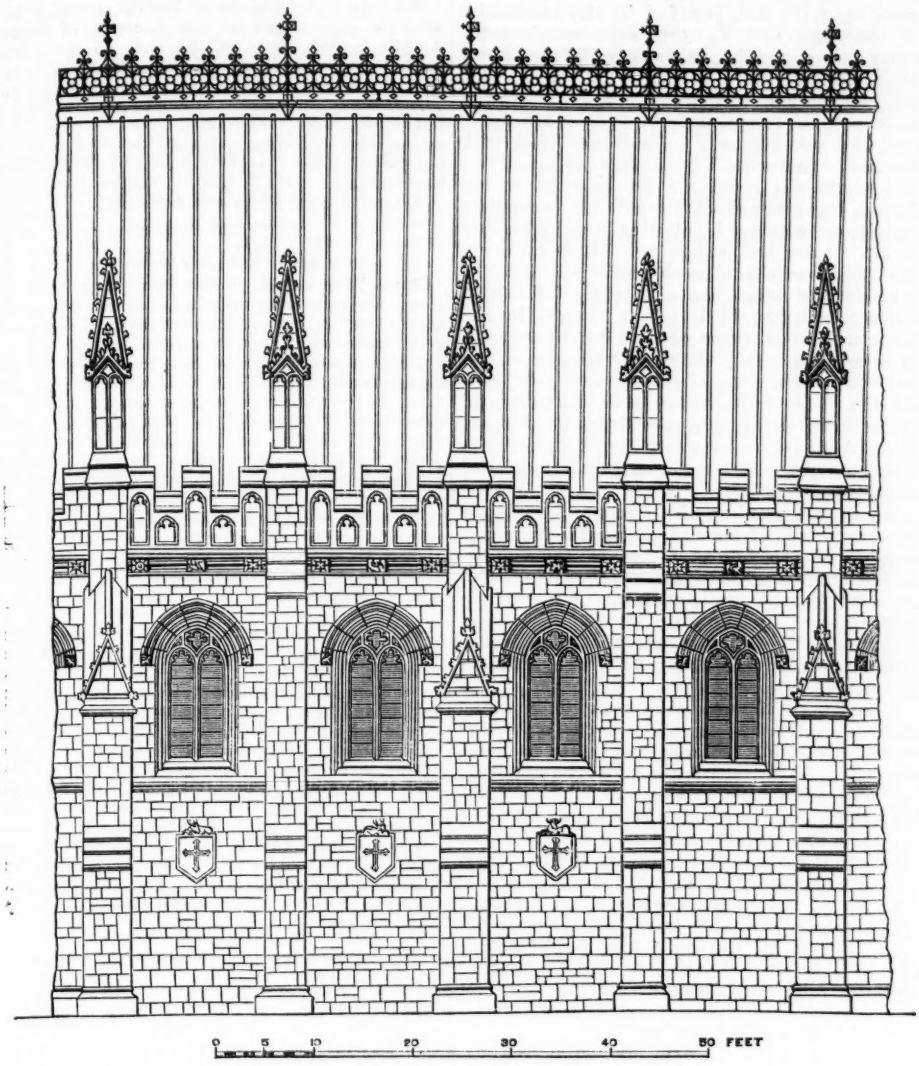


Diagram explanatory of Mr. Fergusson's Proposed Method of Treating the West Front of Westminster Hall.

WESTMINSTER HALL.

SIR,—The evidence already collected by the Committee of the House of Commons, together with the correspondence on the subject in the *Times* and other papers, have, at all events, made it quite clear that the west side of Westminster Hall was never seen or meant to be seen from without. It formed one side of the court, or series of courts, in which the domestic offices of the palace were situated; it, in fact, formed a good strong blank wall, which was, at all times, from its erection, utilised to support buildings or lean-tos of one or two stories, with sloping or flat roofs as convenience may have required. There is, however, absolutely no proof, either historical or material, that a cloister, or anything of the sort, ever existed there. The remains of traces of the external walls of the Hall of Rufus being still found *in situ* in itself is sufficient to prove that it never was intended to be seen. The architects of the time of Richard II. considered the Norman style as barbarous and exploded, and never would have allowed any fragments of it to remain had they not been covered up and concealed by some subsequent exertions. This, therefore, is a case in which archæology may, for once, be safely thrown overboard. It is in vain and absurd to look at the wall of the Hall when it formed the unseen side of a private inner court for any hints as to the mode of treating it, when, by the recent demolitions, it has become the most prominent and important external feature of one of the most ornate buildings in Europe.

This being so, the one question that now remains to be solved is to try to ascertain how, under these altered circumstances, a Mediæval architect would have treated the west flank of the Hall, and we may certainly answer, in the first place,—Not as Mr. Pearson proposes to treat it. The great defect of the west wall as at present exposed, and it is a serious one, is that it is too low when seen in conjunction with the noble but colossal roof it was built to support. By cutting the height into two or three low stories, by dividing it into walls in two planes, and by strongly accentuating the horizontal lines, Mr. Pearson's design tends in every way to exaggerate this defect and to destroy the dignity that would result from a simpler treatment. What I, on the contrary, conceive a Mediæval architect would have done under the circumstances would have been to accentuate the vertical lines of his design at the expense of the horizontal, and to introduce no prominent feature between the base and the coping. This could easily be effected by introducing an attached buttress between each of the flying ones, and crowning them all by pinnacles of appropriate height. Whether exactly as shown in the annexed woodcut or in any other form we need not now stop to discuss. It would certainly be on that principle. The woodcut, however, must not be considered as pretending to be a design fit for execution; it is in reality a diagram intended to illustrate two among the many modes which could be adopted for that purpose, but the details of which must be left to be designed by whoever is entrusted with the execution of the work. The special merit of the proposal shown in the woodcut, for the present purpose, is that its thirteen buttresses and pinnacles reproduce the thirteen trusses of the roof internally, and so bring the exterior and the interior into that harmony which is one of the important elements of all good architecture.

There are in England probably 100 halls of various sizes attached to palaces, colleges, or other public buildings, not one of which, I venture to assert, has its principal front encumbered by low mean buildings, such as it is proposed to add to this the greatest and most important of them all. In every one, so far as I know, the front wall rises from the ground and continues unbroken to the coping, and a battlement of more or less importance is added with pinnacles and other ornaments to give it greater height and dignity.

Neither Mr. Pearson nor any of the architects consulted by the Government seem to have realised the glorious opportunity the recent demolitions afford of completing one of the most beautiful architectural combinations anywhere to be seen. The Hall, as a secular building, is the exact counterpart of the nave of the Abbey, as an ecclesiastical one, and the two seen together form a group, in combination with the Parliament Houses, which one might challenge the world to rival. On the whole, I am inclined to believe that the Hall,—if properly treated,—is the finest and grandest of the two, and to deform it, as it is proposed to do, by mean and incongruous adjuncts, would be,—to use the mildest form of expression applicable,—an unpardonable mistake.

The design by the late Sir Charles Barry, represented in your last issue, is too grandiose, and on too expensive a scale to be thought of, in these days of economy. If the Government want a building to accommodate commissions and committees, or residences for officers of the House, they can obtain it nearly as conveniently, and far more cheaply, by erecting a plainer building at the south end of the garden facing the Victoria Tower. It could easily be connected with the Houses by a corridor along the Embankment, and might be made a far more valuable metropolitan improvement than any building in New Palace-yard.

The great objection, however, to Sir Charles Barry's scheme, to my mind, is that it again covers up and hides the Hall. My impression is that if he had lived to see the Hall in the dignified position it now holds, he would have seized on its exterior, and made it the central and most important feature of his new buildings, in the same manner as he has made its interior the appropriate vestibule to the Houses, which thus forms the noblest feature in his design. With his taste and skill he could very easily have accomplished this. It remains to be seen whether his mantle has fallen on any of his successors, and if they are capable of making it externally, as it is avowedly internally, the most beautiful Hall in Europe.

JAS. FERGUSSON.

20, *Langham-place*, Jan. 27, 1885.

SURVEYORSHIP ITEMS.

Accrington.—Mr. E. Knowles, Borough Engineer and Surveyor of Accrington, has been appointed by the Accrington and Church Joint Sewerage Board as their Engineer, at a salary of 200*l.* per annum, in addition to his salary as Engineer to the Corporation.

Lynn.—The Lynn Town Council, at a special meeting on the 16th inst. convened for the consideration of the Borough Surveyor's duties and emoluments, unanimously resolved to employ Mr. E. G. Mawbey (the Borough Surveyor) to design their engineering and architectural works, and for such work, in addition to his salary for ordinary duties, to pay him 4*l.* per cent. if the works are carried out and if approved, but if not carried out, 2*l.* per cent. The architectural work now in hand consists of the restoration of the Town-hall, new Fire Brigade Station, stabling, stores, and cart-sheds. The latter are now being erected. The engineering work includes an iron bridge over the river Nar. The salary is 300*l.* a year, with house, rates, and coal free, for the appointments of borough surveyor, waterworks manager, chief officer of the fire brigade, and estate agent. The Corporation are the principal land and property owners in the borough, and own extensive estates beyond its boundaries.

Schools and Mission Church, Blackburn.—In response to an invitation from the Building Committee of St. Michael's Parish Schools, Blackburn, ten sets of drawings have been received in competition for the proposed Branch Schools and Mission Church at Little Harwood, Blackburn. After an examination by the committee, it was resolved that the whole of the drawings be submitted to an independent architect for adjudication (no one, excepting the vicar, the Rev. S. F. Harris, M.A., to become acquainted with the name of the referee). The four designs selected by the referee are two sets with the motto "Knowledge is Power," one each "Design by Study," and "Self-Help."

PETERBOROUGH CATHEDRAL TOWER.

SIR,—During the correspondence on this subject in the *Times*, reference was made by Professor Freeman to the new steeple of Chichester Cathedral, as "preserving the actual touch of the old building." This, though on the whole correct, seems to imply that the rebuilding was carried out *exactly* as before the fall in 1861. There was, however, an important alteration then made, in order to get over an ancient defect, much like that which existed at Peterborough.

At Chichester the roofs and clearstory walls of the body of the church had all been raised in the fourteenth century, and the pitch of the roofs slightly increased above that of the roofs of the preceding century, which were co-eval with the tower belfry stage then reconstructed on the Norman arches. The result was that the roofs, as raised, ran up against and covered the bases and lower part of the shafts of the belfry windows.

When the plans for the rebuilding of the steeple were prepared (from drawings of the old one) it was decided by the architects, the late Sir G. G. Scott and the late Mr. W. Slater, that this manifest defect should not be reproduced, and therefore they raised the lower arcaded stage sufficiently high to keep the string-course above the roofs, giving thereby an increased height to the tower of about 5 ft.

At the same time the window piers were constructed of sufficient strength to support the weight of the spire, thus making it unnecessary to reproduce the filling in (of the fourteenth century) of the belfry lancets.

Such judicious alterations are surely allowable in a nineteenth-century rebuilding, and may be cited as an example in the proposed reproduction of the Norman arcaded stage at Peterborough, and the consequent lifting of the fourteenth-century belfry stage above it.

I may add that the pinnacles and spire lights at Chichester had been repaired and altered by Sir Christopher Wren. The new ones are copies of these, as no other detail could be discovered. They had been repaired in Portland stone instead of in Beer stone, like the spire.

R. HERBERT CARPENTER.

THE LATE MR. SAMUEL HUGGINS.

SIR,—To your brief notice of the late Mr. Samuel Huggins [p. 129, *ante*] may be added that on one occasion, at least, he tried for success in the field of active professional work in the competition for the Liverpool Free Public Library and Museum. His design remains in my remembrance as one characterised by refinement and elegance.* During the last months of his life his mind was much occupied by the Liverpool Cathedral project, and I had several letters from him on the subject. In one dated October 4th he wrote,—"*I* was not one of the ninety-nine (original competitors), but I have made a design for a Protestant cathedral (Classic), which I intend to publish somehow or other, if possible." I strongly urged him to fulfil his intention in a sufficiently adequate manner, and cited for example Wordsworth's publishing of the "White Doe of Rylstone" in quarto, to show the world, as the poet said, his own opinion of it.

Besides the Chart of Architectural History you refer to, Mr. Huggins compiled a manuscript Chart of Philosophy, which is now in the Liverpool Reference Library.

JAMES HIBBERT.

FIREPROOF CLOSING OF OPENINGS IN PARTY-WALLS.

SIR,—In my paper at the Institute I spoke, it is true, of persons "acting in defiance of legislative enactment." This referred, however, not to the number of the openings (as implied by the first published abstract), but to the use of over-lapping sliding doors instead of doors fitted into a rebate.

I must confess that I had not, until after the reading of my paper, the very slightest notion that this deviation from the lines of the statute was accepted and acted upon by architects, by District Surveyors, or by members of the Metropolitan Board of Works as an improvement upon the Act, justified by the necessities of the case and by the supposed impossibility of complying always with the letter of what is laid down. But even then no explanation was given, or in any way attempted, as to the mode in which this interpretation was supposed to be reconcilable with the Act. And what I pleaded was that, if the Act practically could not be followed or enforced, there was at least a call for immediate legislation, whether by altering it or by making it more clear and obligatory. It is most undesirable that a professedly-stringent Act, the provisions of which are admittedly difficult of enforcement, should be set at nought in the daily practice of those who are bound to work in accordance with these provisions. It can only make other equally-important provisions all the more burdensome and impossible of observance. Still more so will this be the case if the Act is to be considered as "intended as a sort of advice rather than a dictation of what should be done."

As to the number of openings, I certainly expressed myself strongly upon the Act being capable of the interpretation of their strict limitation, though I could not insist upon it, especially as the interpretations of the authorities quoted by me were on the other side. But what I insisted upon was, that if no limitation were laid down in the Act, it ought to be laid down.

I have certainly no wish to make unbecoming charges against District Surveyors or others of my brethren. It may be better to leave admitted and prevalent abuses to be raked up by some valiant Saint Edmund, who can deal with them incisively, and without such offence.

At the same time it may be, upon the whole, better that we should do what we can to reform our own abuses by a frank acknowledgment of them. And if, from the absence of all definition of a "rebate," the Act is so obscure that the magistrate in his density cannot penetrate the gloom, it is time that a little light should be admitted from some direction or other.

WILLIAM WHITE, F.S.A.

No. 30, *Wimpole-street, W.*

SIR,—The paper read on the above subject at the Royal Institute of British Architects, and the discussion arising therefrom, as reported by you on the 24th of January [p. 149], afford sufficient evidence that, as a rule, the provisions of the Metropolitan Buildings Act are inadequate to secure the protection desired. The reasons of failure are not difficult to trace. In the instances mentioned of doors made merely according to the Act which are reported to have been successful, the success has arisen from the comparatively slight test to which they have been subjected. Whenever the full intensity of the fire has been directed against the door by the direction of air-currents, there can be little doubt that in a fire of any magnitude they have invariably failed. The immediate causes of failure are these:—

1. The intense heat causes expansion and buckling of the door-plate.

2. This occasions openings between the door-plate and frame, and, in the case of sliding-doors, between the door-plate and wall.

3. This, again, allows the fire to penetrate to the door fixed to the other side of the wall, which, in its turn, similarly succumbs, and allows the fire free passage from one compartment of the building to the other.

4. But in the case of sliding-doors, even without expansion and buckling by heat, a considerable space exists between the door and the face of the wall at the top, bottom, and sides of the door, as mentioned by Mr. Wyatt Papworth in the course of the discussion.

It follows, then, from these facts, that there can be no security in such doors (whether hinged or sliding) unless they be so firmly held in position all round their edges that no amount of expansion or buckling shall be able to draw their edges out of their rebates. This we claim to have effectually provided for by our patent of 1883.

In 1883 we were applied to by the late Mr. Thomas Chamberlain, architect, to design and supply, for Messrs. Faudel & Phillips's new premises in Newgate-street, a number of large sliding iron doors, which, while complying with the terms of the Buildings Act, would also be really effective against a fire of the greatest magnitude, even when intensified by great wind-pressure carrying it directly against the doors. In compliance with these instructions, doors were manufactured by us for four distinct openings. The efficiency of these doors was fully proved in the disastrous fire which occurred in April, 1884. On the rebuilding of the premises, we received instructions from the architect to supply doors throughout, constructed on the same principle as those which had been thus thoroughly tested.

HOBBS, HART, & CO.

SIR,—In your account of the debate upon Mr. White's paper, read at the Institute of British Architects, you refer [p. 150, *ante*] to statements made "by a visitor who did not give his name, but who said he had attended as a representative of the Fire Offices Committee." I beg to state that this is not correct. Not only did I give my name, but I added that, "although a member of the Fire Offices Committee, I did not attend there as a delegate from that body."

G. W. COOKE, London Manager.

West of England Fire and Life Office.

THE ROYAL ARMS.

SIR,—Your correspondent in to-day's issue has given an interesting fact in connexion with "the supporters" being reversed north of the Tweed, and, I venture to say, a fact very little known.

I have somewhere read that the *quarterings* are also reversed in Scotland, that is to say, the lion rampant occupies the first and fourth quarters (as the "Lions of England" do with us), while we and Ireland take the second and third quarters respectively, but at this moment I cannot call to mind my authority for this assertion, and I write this in the hope that it may meet your correspondent's eye and induce him to say whether it is a fact or not. A man who would notice the change of position in the "supporters" would be almost sure to note this alteration in the quarterings, and this question is also of interest.

J. B.

SIR,—In the interesting article on this subject in your issue of the 17th inst. [p. 115], you inquire, "Where is the beginning?" The following passage from Kohlrausch's "History of Germany" may be information to some of your readers, as it was to me:—"In 1235, Frederick II. of Germany held a Diet. Before the Diet assembled, he celebrated at Worms his espousal with his second consort, the English Princess Isabella. At the marriage, four kings, eleven dukes, thirty counts and margraves were present. Frederick made the most costly presents to the English ambassador, and among the rest he sent rich gifts of curiosities from the East to the king of England, as well as three leopards, the leopards being included in the English coat of arms."

W. G.

SIR,—Permit me to supplement the concise and interesting notice that appeared in your pages on January 17th, by stating, firstly, that the shield of Richard I. bore two lions combatant *before the Crusade*. Secondly, the motto "Dieu et mon droit," was *first* adopted by the same monarch (Cœur-de-Lion) after the battle of Gisors, A.D. 1198, it being his parole on that memorable day.

EDWD. A. HEFFER.

"ARCHITECTS' CLUB."

SIR,—I quite approve of Professor Kerr's proposal for the establishment of a club-room at the Institute, and cannot agree with "No!" [p. 151, *ante*], that there is anything derogatory in the idea. The want of such a rendezvous has long been felt, and often talked about. It would be a great convenience to many town and country members, especially the latter, who would then have a recognised head-quarters where they could make appointments, write and receive letters, and meet other members of their profession with whom they might be desirous of comparing notes on the many questions that are constantly cropping up in the architectural world.

The Institute premises are quite large enough in the meantime; there is a good library and reading-room,—to the latter might be added a larger and more varied supply of papers; and the present arbitration-room would make a capital club-room *per se*.

The question of refreshments, and the hours during which the club would be open, may be safely left to a representative committee, every member of which would doubtless be as jealous of the dignity of the Institute as "No!" can possibly be.

I, for one, am quite ready to give Professor Kerr any assistance that may be in my power if he will take the matter up, as, if properly managed, I feel sure it will prove a success.

J. M. BRYDON.

SEWER VENTILATION.

SIR,—Some local authorities are urging,—and would, if they had the power, compel,—architects and builders to ventilate main sewers by running up the sides of houses pipes connected with the main sewer outside of the trap that separates the main from the house drains. I am neither an architect nor a builder, but as a layman I have a practical interest in this question. Where can I find the most recent and best arguments for and against this plan of ventilating main sewers? At present I am inclined to object to the plan as likely to fill the air round the upper windows not only with sewer gases, but also with disease germs. Most sewer gases become innocuous as soon as they are oxygenised by contact with the air; but the disease germs are not thus killed. I yield to none in my sense of the importance of having the main sewers properly ventilated, but the above does not appear to me to be the proper plan. I ask for instruction.

LAICUS.

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* We remember the design, which was a good one. An incident in it was the introduction of two colossal lions flanking the steps to the main entrance, which were put in by the architect's brother, the eminent animal painter, who was great in lions.—ED.

RIGHT OF WAY.

SIR,—In reply to "A. B." [p. 118, *ante*] I do not think there is any legal width for such a road as described by him. The width, if it came to trial or arbitration, would be decided by what users of such roads said on both sides was necessary.

I have just finished laying out a road for the conveyance of agricultural produce through a field to and from a farm-house and a main road, and, by consultation with the user, I made the metalling 8 ft. wide, commencing the metalling 5 ft. from the stools of the fence; there was no ditch. I may say the road skirted along one side of the field close to the fence, the object being to take as little a width of the field for the road as possible, the user of the road being also the occupier of the field. I should think if 3 ft. were also allowed on the side of the metalling farthest from the fence you would then get the minimum width for such a road,—namely, 16 ft. 6 in.

It should be borne in mind by "A. B." that if loads specially large,—the largest loads I ever saw were in London,—have to come along the road he asks about, 3 ft. more in width at least should be given; and if provision must be made for carts and wagons passing each other, the metalling should be doubled in width, making total width 24 ft. 6 in.

W.

VENTILATORS.

SIR,—In your issue of January 24th [p. 129], you publish a paper on Ventilation, read by Mr. F. R. Farrow at the Architectural Association. We notice that Mr. Farrow spoke most favourably of our ventilating cowl, although in a qualified manner; for, whilst admitting that "nothing could be simpler, and nothing more effectual," he intimated that he personally preferred a fixed or stationary ventilator with no moving parts. Now, as we are makers of fixed or stationary ventilators, patented by us in 1877, which are made on the same principle as our movable cowl (the only difference being that in the fixed ventilator the action of the wind is utilised in a vertical direction instead of horizontally), we must ask your permission to call Mr. Farrow's and your numerous readers' attention to this fact.

Mr. Farrow's paper is a most interesting and sensible one, but we must ask you to insert this in your valuable publication, in order to remove what is evidently an erroneous impression on his part as well as some of the public.

BANNER BROS. & CO.

Billiter-square, E.C.

NEW STREETS.

SIR,—It appears that at last some progress has been made with the new street from Piccadilly to Oxford-street, and your advertising columns show that the ground will soon be cleared; but what is intended as to St. Andrew-street and St. Martin's-lane,—a matter of great moment, and calling for immediate action?

You some little time ago gave an interesting account of the noted houses in the latter, but nothing seems in progress as to its improvement. Hemming's-row, also, and the way to Leicester-square, much requires widening, the traffic being very great.

Perhaps you can furnish information, and give a sketch map of the alterations proposed.

ST. MARTIN'S.

NON-ACCEPTANCE OF LOWEST TENDER.

SIR,—After wading through plans and specification for the purpose of giving a *bonâ-fide* tender, one naturally expects that if he is the lowest he will have the work, especially when he is asked to tender, and does not get his information through an advertisement. This, however, is not always the case, and in a recent instance a tender 20*l.* above mine was selected.

I consider this absolutely unfair, and calculated to prevent genuine tenders; but anyhow, some one should be responsible for the trouble and expense to which one has to go.

FAIRPLAY.

PAINT ON FRONT DOOR.

SIR,—Two or three weeks ago I asked if any of your readers could tell me how to stop the running of gum, or whatever it is, from a front door that has been hung about ten years. It causes the paint to peel off as soon as ever the sun has any power on it, though the paint has been burned off and the parts knotted and painted four coats more than once.

In asking this question I fear I have given a poser, but I should be very glad to get a reply. Will any of your practical readers kindly tackle it?

H. G.

The City Law Courts.—According to the *City Press*, the old law courts in Guildhall-yard are to be arranged for the use of the Chamberlain and the officers in his department.

ST. MATTHEW'S, BAYSWATER.

SIR,—In your impression of the 24th inst. [p. 132] I find a notice of the Baptistery of St. Matthew's Church, Bayswater, in which the carvings are attributed solely to Mr. Lawlor and Mr. Baird. Please allow me to request a correction of that statement, as the walnut font-cover, so prominent in your engraving, was executed by me, also the oak carvings in the chancel.

WILLIAM HAWES.

THE CONNEXION OF HOUSE DRAINS WITH SEWERS.

WHAT IS A "PAVEMENT"?

A CASE of some importance to builders interested in the development of building sites in new districts came before Mr. Mansfield at the Marylebone Police-court on Wednesday, when Mr. William Hoopel, builder, of 17, Victoria-villas, Kilburn, appeared to answer two summonses, issued at the instance of the Vestry of St. John, Hampstead. The first summons was taken out under the Act 18 & 19 Vict., c. 20, s. 78, for that on the 26th of December the defendant did neglect and refuse to pay to the said Vestry the sum of 11*l.* 7s. 7d., being the expenses incurred by the Vestry in making and branching cert in drains from four houses into the public sewer in D'Eresby-road, West Hampstead, it being necessary to open part of the pavement of the street for the purpose of doing the work. The other summons was taken out under the Act 25 & 26 Vict., c. 102, s. 61, that on the 12th of December last the defendant did unlawfully make an opening into the sewer in D'Eresby-road (which sewer is vested in the Vestry) without the consent of the Vestry.

Mr. Ricketts and Mr. Moore, solicitors, were for the Vestry; and Mr. E. B. Denniss, barrister, instructed by Mr. S. Tilley, appeared for the defendant.

The case for the complainants was that a sewer constructed in any road within the metropolitan area became vested in the Vestry or District Board, and that any one entering it without proper consent was, according to Act of Parliament, committing an offence for which he was liable to a 50*l.* penalty. The Act also gave the Vestry the right to claim to make all connexions of drains to the sewer, the expense to be charged to the owner. The defendant in this case had been refused permission to make the drains to his houses and connect them with the sewer, and the Vestry having carried out the work now claimed the cost of the work. In regard to the second summons, it was urged Mr. Hoopel had clearly committed an offence by breaking into the sewer.

Mr. Chas. Harlow Lowe, Chief Surveyor to the Vestry of St. John, Hampstead, and Mr. F. Thompson, his assistant, gave evidence to the effect that prior to the March of 1884, the Vestry had permitted builders, after having got proper sanction, to make the drains to their houses upon the payment of certain fees. The Vestry then adopted a new regulation, by which they claimed to do the work themselves and charge the owner with the costs. On the 12th of December, Mr. Thompson found a man putting in an "eye," connecting the drain of one of the defendant's houses with the sewer, and reported the matter. Under his supervision the parish workmen had made the drains to four of the defendant's houses, and a charge of 11*l.* 7s. 7d. for the work was made, which account the defendant refused to pay. In cross-examination, Mr. Lowe admitted that the roadway in the thoroughfare in question was what was known as a "builder's road," —a little bottom and some gravel on the top,—the footpath being of hogging and burnt ballast, and having a stone kerbing. The account was made up of time and material, and an addition of five per cent. for supervision. It was not denied that the defendant had tendered to the Vestry two sums of 14s. 8d. when asking permission to make the drains, and that they were refused.

Mr. Denniss, for the defence, asked the magistrate to dismiss the first summons, as the complainants had not made out their case. First of all, they had not proved that any "pavement" had been removed, according to the wording of the summons, to carry out the work; and next he should contend that this D'Eresby-road was not a "street" within the meaning of the Act, and that what had been done was, in fact, an interference with private property; further that this was an attempt to set up a right, which, if well founded, had been possessed by the Vestry for the last twenty-nine years, and had never been asserted until now. The sewer, which defendant's predecessor had constructed, was, no doubt, by the Act, vested in the Vestry, and his client did wrong in breaking into it. But it had been the practice of the Hampstead Vestry to allow Mr. Hoopel to make the drains of his houses, and however much the Vestry might have control over the making of the drains of houses in roads vested in the parish, this was a private piece of land, and did not come within the meaning of the word "street" as defined by the Act.

Mr. Ricketts argued that the term "pavement" did not necessarily mean York stone, but any material used in the formation of a pavement. The sewer was clearly vested in the parish authorities, and it was equally clear that if the sewer needed to be repaired, the Vestry would have the right to take up the road to do the work. He should submit that the formation of the pavement must be held to be the pavement.

Mr. Denniss quoted a case promoted by the Corporation of Manchester, in which it was held that a pavement must consist of stone, asphalte, or some material of a permanent character, not of the nature of gravel; also a decision of the late Sir Geo. Jessell, who ruled that no local authorities could take over a road which had not been paved, kerbed, channelled, and lighted.

Mr. Mansfield said that the action of the Vestry might involve a hardship upon the defendant, but as a matter of public policy he thought Vestries should make the drains to all houses, and that would put a stop to the state of things often found in houses not properly constructed. The sections of the Act referring to the word "pavement" were very difficult to understand in the absence of any definitions, but he was inclined to adopt the construction put forward by the counsel for the defendant. As at present advised, he should decide against the Vestry as regards the claim of the cost of making the four drains, but against the defendant for breaking into the sewer, and should order him to pay a nominal penalty of 40s., with 2s. costs. He should give no decision as to the term "street."

Mr. Ricketts asked that a case might be stated for a Superior Court, and the application was granted.

LIGHT AND AIR CASE.

BIGNOLD *v.* MITCHELL AND OTHERS.

THE plaintiff in this action (tried at the Norfolk and Norwich Assizes, before Lord Chief Justice Coleridge), Mr. E. S. Bignold, solicitor, brought an action against the defendants, Messrs. Mitchell, Burton, & Barnes, trustees of the Norwich Medical Institute, for raising a building which interfered with and obstructed the ancient lights of his house. Defendants denied they were ancient lights, and claimed that if they were, the light had not been materially obstructed.

Mr. Bulwer, Q.C., M.P., and Mr. Blofield appeared for the plaintiff, and Mr. Grantham, Q.C., M.P., and Mr. S. Reeves for the defendants.

The plaintiff complained that in front of the house occupied by the Medical Institute in Lady's-lane, a building 11 ft. 5 in. high had been erected as a dispensary at a distance of 25 ft. from plaintiff's dining-room windows. This building was 4 ft. or 5 ft. higher than the old ivy-covered wall which formerly existed. Plaintiff made no objection to the old wall being raised 1 ft. 6 in.; but when he saw the work was progressing higher he applied for an injunction. The Court of Chancery directed that a jury at these Assizes should try the case. The plaintiff, with others, gave evidence that his dining-room was much darkened by this wall; and Mr. E. Preston Willins, architect and surveyor, produced a model of the buildings in dispute, and deposed as to the loss of superficial light formerly enjoyed, and also as to how the building could have been constructed so as to avoid this difficulty.

The defendants called the builder of the place, and Mr. E. Boardman and Mr. J. H. Brown, architects, and Mr. Barnard, surveyor, who relied upon the angle of 45°, which the Judge directed the special jury was an exploded theory.

A verdict was given for the plaintiff for 40s., to carry costs; and the Lord Chief Justice granted an injunction in the terms prayed for,—that is, to pull down the whole of the wall in dispute.

The Wages of the Working Classes.—It is satisfactory to be told by so good an authority as Professor Leone Levi that the earnings of the working classes amount to 521,000,000*l.* per annum, or, exclusive of food, &c., 470,000,000*l.*; yielding an average of 32s. per week per family, assuming each family to have 2·17 earners. Comparing the earnings of the working classes for the year 1867 with those of 1884, there is an increase from 38*l.* to 42*l.* 14s. With good health and good thrift the case of our working classes should not be so bad as it is. We may well believe with Professor Levi that in no other country are the working classes so well off. The next most important question is, How are the wages spent? It is useless to maintain that the answer to this question is satisfactory. Part of the unthrift is to be lightly condemned, but much of it is really culpable. The enormous amount spent on drink is not denied by any authority. It is said that while we as a nation spend on bread 70,000,000*l.*, on milk 30,000,000*l.*, on butter and cheese 25,000,000*l.*, on house rent 70,000,000*l.*, and on the rent of farms 60,000,000*l.*, we spend on alcoholic liquors 136,000,000*l.* We want improvements in cooking for the working classes, so as to make the most of their food supplies. This is to be done partly by educating girls more practically, and partly by public arrangements.—*Lancet.*

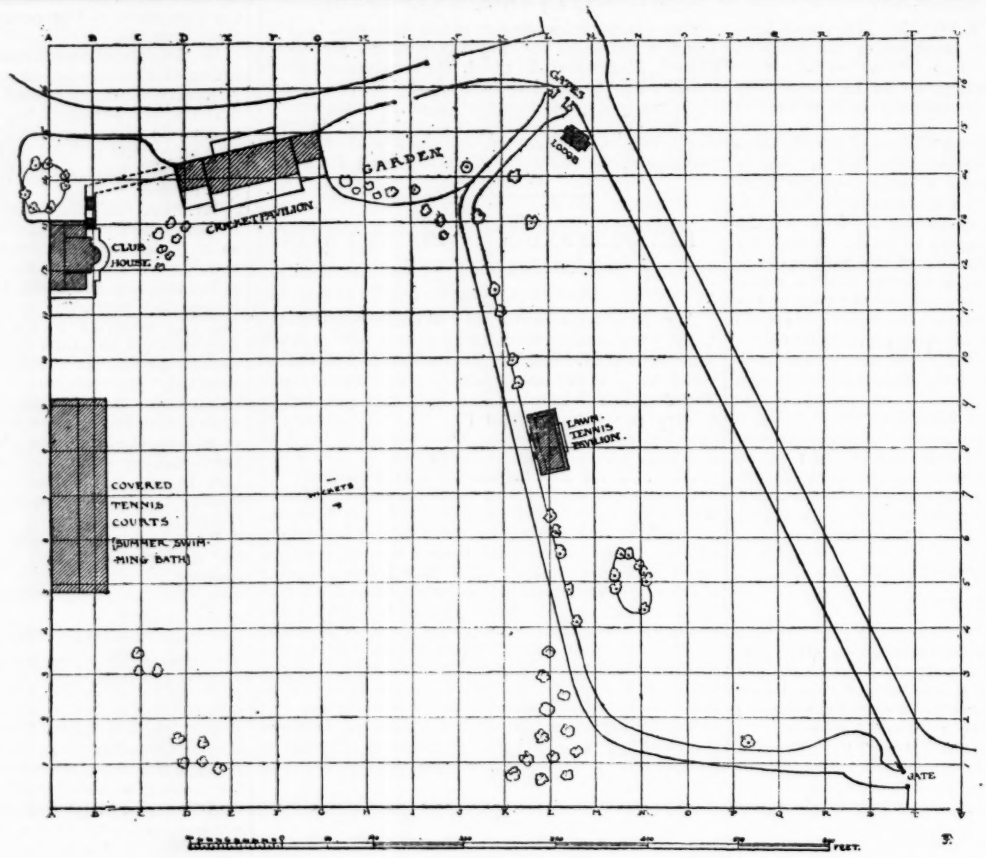


Fig. 2.

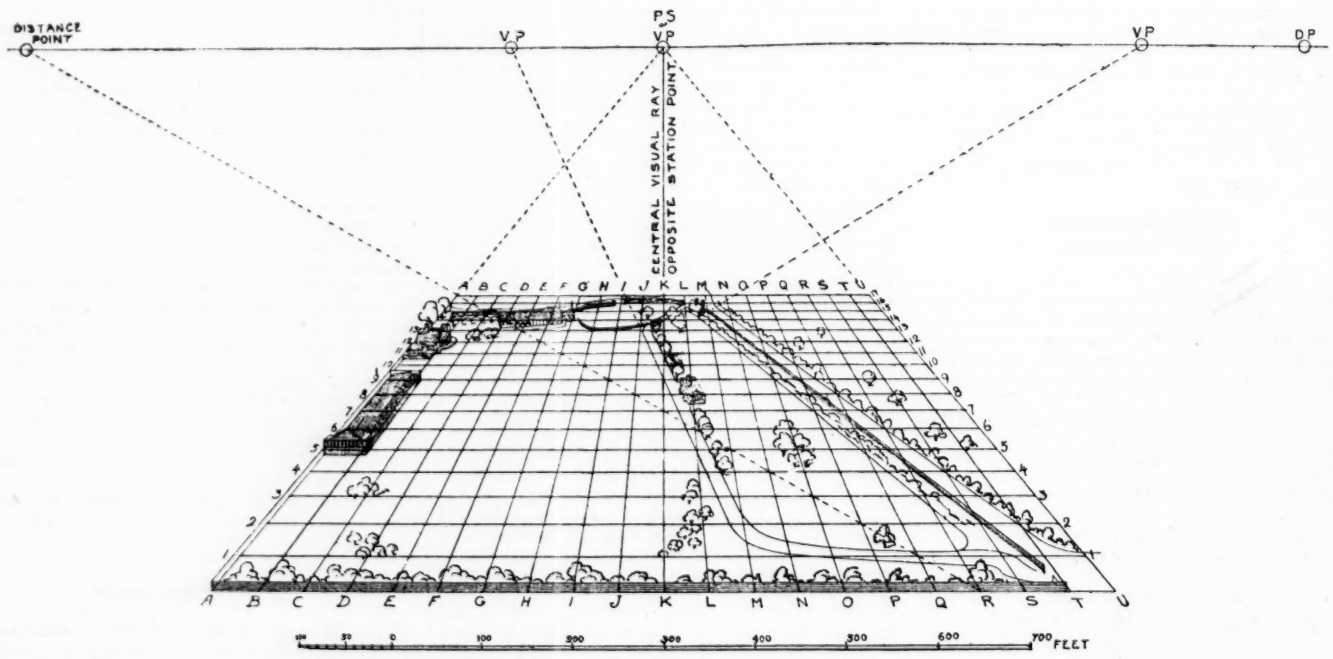


Fig. 3.

The Student's Column.

LESSONS IN PERSPECTIVE.—No. 3.

PARALLEL PERSPECTIVE AND BIRD'S-EYE VIEWS.

IN the former lessons, the object to be drawn was placed at an *angle* to the spectator, and was represented by the process known as *angular perspective*.

The same process *may* be applied to the representation of an object, such as the interior of a rectangular room, as seen by a spectator standing at one end of the room and looking straight at the other end, so that the central visual ray will be parallel to the side walls. He will next fix his picture-plane at a convenient place across the room.

The vanishing-point of these side walls will then, of course, be *on* the central visual ray, as any one will find by laying down the plan and station-point, and applying the rule for finding vanishing-points.*

* There are refinements upon this rule to meet the distortion or exaggerated appearance of length sometimes produced by it; but it will be found to answer most purposes if the usual care be taken not to comprise too wide an angle of vision.

This one vanishing-point will serve for all the cornices, floor-boards, and all other lines that are parallel to the side walls, and when they are connected across from the end corners of the room, these connecting lines, representing the end of the floor and ceiling, will be found to be *parallel* to each other. In other words, all such lines will be horizontal.

Such a representation is said to be drawn in *parallel perspective*.

Now, some benefactor to the human race, or those members of it who make perspective drawings, made the triumphant discovery that this same result could be produced by simpler means, and that, instead of having to crowd a plan with an infinity of visual rays, the *distance* of any object beyond the picture-plane may be put immediately on to the perspective view itself without touching the plan.

Indeed, the plan need not even be pinned down on a board, nor any preparation be made beyond laying down a sheet of paper for the perspective view, and setting up thereon a transverse section of the room (fig. 1).

Across this section draw a *horizontal* line at about 6 ft. above the floor, and draw a *vertical* line to represent the central visual ray. This need not be in the centre of the room, as it is better to show a little more of one side of the room than of the other.

The point where these two lines intersect will be our old friend the vanishing-point, sometimes called the *point of sight*, and towards it all the lines of the side walls, &c., will converge.

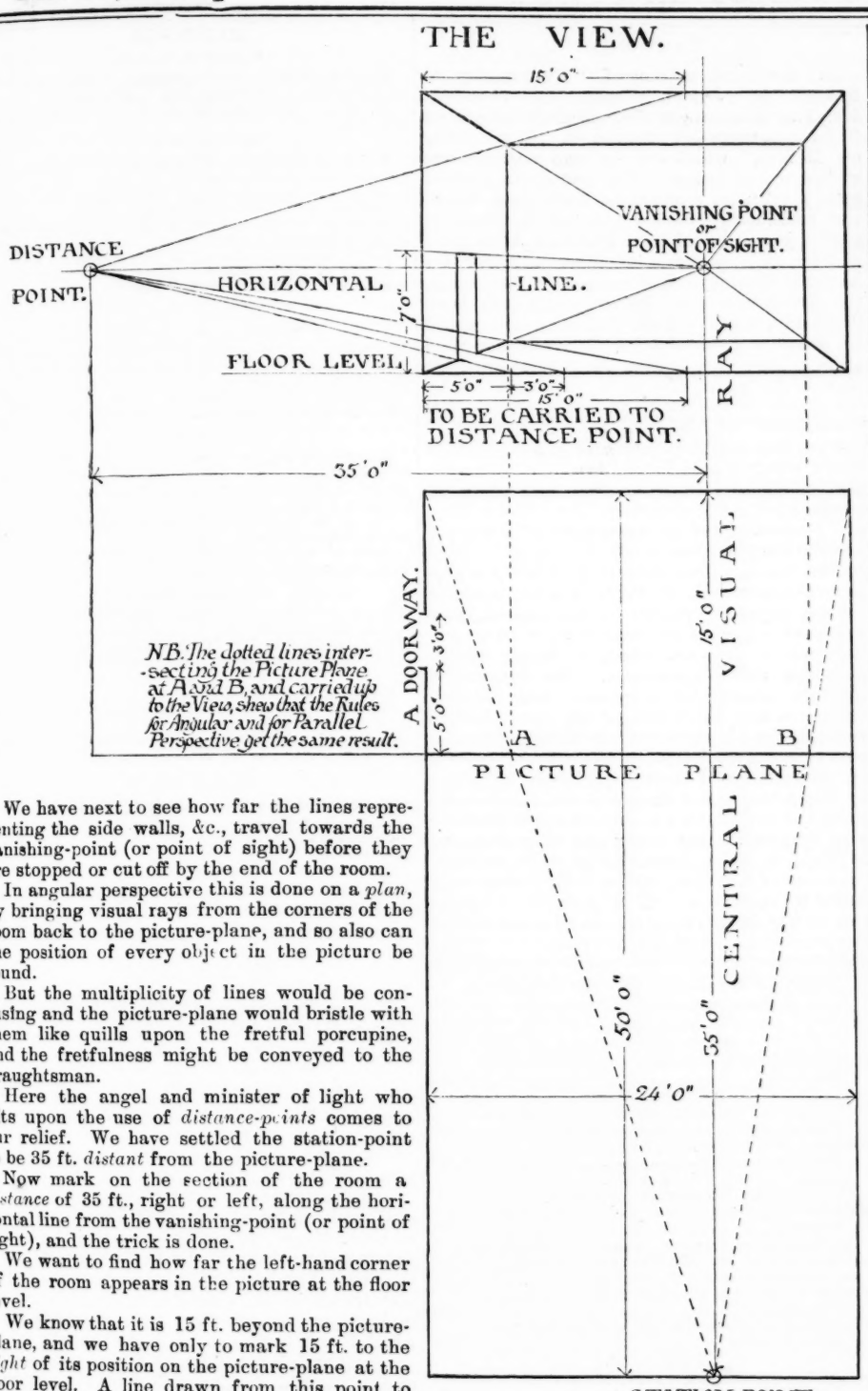
Reverting to our first lesson (vol. xlvii., p. 443) we will suppose that a huge sheet of glass is placed across the room and that we have to represent thereon what we see through it.

How far down the room shall we set up the imaginary sheet of glass?

This will be decided by the *distance* that we can stand back from it, so as to look through it comfortably.

Suppose the room to be 50 ft. long and 24 ft. wide. If we stand near one end wall and set up the glass 35 ft. down the room, we should see the remaining 15 ft. through it, which would form our perspective view.

Now, the transverse section that we have set up, as above described, is to correspond in position with the imaginary sheet of glass, or picture-plane.



THE PLAN. 3.

Fig. 1.

We have next to see how far the lines representing the side walls, &c., travel towards the vanishing-point (or point of sight) before they are stopped or cut off by the end of the room.

In angular perspective this is done on a *plan*, by bringing visual rays from the corners of the room back to the picture-plane, and so also can the position of every object in the picture be found.

But the multiplicity of lines would be confusing and the picture-plane would bristle with them like quills upon the fretful porcupine, and the fretfulness might be conveyed to the draughtsman.

Here the angel and minister of light who hits upon the use of *distance-points* comes to our relief. We have settled the station-point to be 35 ft. *distant* from the picture-plane.

Now mark on the section of the room a *distance* of 35 ft., right or left, along the horizontal line from the vanishing-point (or point of sight), and the trick is done.

We want to find how far the left-hand corner of the room appears in the picture at the floor level.

We know that it is 15 ft. beyond the picture-plane, and we have only to mark 15 ft. to the *right* of its position on the picture-plane at the floor level. A line drawn from this point to the *left hand* distance-point gives the required intersection.

In this manner the whole of the floor can be represented, and the best practice to begin with will be to divide the floor into squares, like a chess-board. Then repeat the same process on the ceiling.

As to the walls, if a doorway occur, say 5 ft. beyond the picture-plane, and be 3 ft. wide, its position can be similarly found, and its height also, by marking, say 7 ft., up the side of the picture-plane. The intersection of height and position completes the doorway.

Now, what is true of the floor of a room is equally true of a field or tract of land, and the first time that the writer had occasion to draw a bird's-eye view of an estate, many years ago, it occurred to him to cover the plan with squares which could be easily put into parallel perspective, and that the perspective position of each object could then be readily ascertained (fig. 2).

The accompanying diagrams will explain this. One of them represents the plan of some recreation grounds that the writer has recently laid out. It is divided out into as many squares as will cover it. These are then distinguished by letters along the top and bottom, and by numbers along the sides.

A corresponding "chess-board," to any scale that may be convenient, is then put into perspective and duly lettered and numbered (fig. 3).

All that one has to do is to find, as it were, the latitude and longitude of each object on the plan and transfer the same to the perspective.

By continuing any line, such as the drive in front of the lawn tennis pavilion, up to the horizontal line, a vanishing-point is found for that and all lines parallel to it; and a little practice will soon enable one to find every position accurately.

The ground, in this case, is level, and the squares from 1 to 17 are found by cutting the lines from B to R, with one line from R to the *distance-point*. This saves the trouble of repeating the process for each square.

If the ground be undulating, the measurement of the hills and valleys can be set up above or below the proper points on the picture-plane and be carried into the picture.

It is not even necessary to disfigure the plan with a network of squares. A sheet of tracing paper so divided has simply to be pinned down over it in order to observe the positions.

In this manner the most tortuous and irregular plans of land and the buildings thereon may be put into very correct perspective.

*** We are much obliged to our correspondents, "Abacus" and "Riser" for suggestions as to subjects to be treated in the "Student's Column"; their suggestions are duly noted for future attention. At present the "Student's Column" is filled up for some little time in advance.

Books.

The Abbeys of Arbroath, Balmerino, and Lindores, illustrated and described by GEORGE SHAW AITKEN, F.S.A. Scot., Architect. Dundee: John Leng & Co. 1884.

THE information we possess about the monastic buildings north of the Tweed is, if not more scanty, at any rate less accessible, than that which attaches to English foundations, and the interest felt in them is proportionately inferior. Of the thousands of tourists who yearly cross the Scottish border "in search of the picturesque" very few concern themselves with aught but the natural scenery, and we should doubt whether a score of them in any single season turn aside to look at the three abbeys which form the subject of Mr. Aitken's volume. With Melrose and Dryburgh, Holyrood and Jedburgh, most persons are, in some sense, familiar, but Arbroath, Balmerino, and Lindores are unknown names to the ordinary traveller, and the two latter are not even mentioned in the edition of *Black's Guide* which lies before us.

Mr. Aitken has, therefore, done good service in directing attention to these almost forgotten relics of an eventful past. He writes, however, as an architect rather than as an antiquary. The history of each house is, indeed, briefly given, but as no authorities are cited for the statements made, we cannot determine their precise value. Grose, Pennant, Sibbald, Turnbull, and others are mentioned in general terms, and the author tells us that he is under special obligations to Dr. Laing and Dr. Campbell for particular information. It would, we think, have been better if Mr. Aitken had added to his thirty-three pages of letterpress some references to original and other authorities in support of what he tells us.

Arbroath, the most important of the three abbeys described, was founded by William the Lion in 1178, and was one of the wealthiest religious houses north of the Tweed. It was dedicated to St. Thomas-à-Becket, and corresponded in width of nave and number of bays with his cathedral at Canterbury. Of course, the difference of arrangement was considerable, and the choir at Canterbury soon outstripped in magnificence that of the Northern house, though the fragments of moulding and carving which have been discovered proclaim the latter to have been no mean structure. Unfortunately these fragments have suffered greatly from exposure and neglect. The situation of the abbey, open alike to maritime attack and to the blasts that sweep across the Northern sea, must have rendered the maintenance of the fabric always a costly and difficult matter. Added to this, there was injury done by lightning and fire in three successive centuries, the second, occurring in 1380, having destroyed the roofs of choir, nave, and transept.

Mr. Aitken, however, has (so to speak) rebuilt the abbey, and by his ground-plans and careful drawings enabled us to realise its general character and main features. The style is partly Norman and partly Early English, and the unbroken continuity of the work shows itself in the conspicuous unity of design and uniform standard of excellence displayed by the abbey. The choir, nave, and transepts are represented by Mr. Aitken as unusually lofty and well lighted, the clearstory being double lancets. The central tower (which fell with destructive force in the eighteenth century) is low and massive, and of the two western towers one only is carried above the roof-line. Mr. Aitken says, "The first authentic [*sic*] change on the original structure appears to have been the addition of a story to the north-west tower, which, with the south-west, was probably intended to have been crowned with a spire. Uncertain foundations may have caused the abandonment of this idea, and the substitution of a safer, but less ambitious lantern, which, though æsthetically doubtful, would be available for a beacon-light in the event of approaching English or Norse invaders." We do not know all that may be meant by "æsthetically doubtful," but we have instances of spires being pulled down, *e.g.*, at Southampton, because they served to attract pirates and other pillagers. The western front of the abbey, as reproduced by Mr. Aitken, may be regarded as a faithful representation of the original, for the recessed doorway,—a graceful

combination of Norman and Early English work,—yet remains, and there are sufficient traces of the noble circular window which filled the gable above it. The sacristy is in fair preservation, and within it are some interesting effigies well worth examining. Mr. Aitken has devoted no less than fifteen plates (executed in photo-lithography by Sprague & Co.) to the illustration of Arbroath, and they bear ample witness to his skill and taste.

Of Balmerino, which gave its name to the unhappy peer who took part in the Pretender's rising, and lost his head upon the scaffold in 1746, the remains are very scanty. The situation of the abbey, in the middle of the Carse of Gowrie, is the very opposite to that of Arbroath. Deep in the recesses of a dell, and overshadowed by lofty trees, the site suggested itself to Queen Ermengarde as a fit abode for religious recluses. To this sequestered spot her son, Alexander II., transported some Cistercian monks from Melrose in 1229. Here they erected a church, of which sufficient vestiges still remain to indicate that it followed the outline of a Latin Cross, with two or more aisles. But the road-maker having for centuries regarded the ruins as his most convenient quarry, has left little of the masonry untouched. The secular buildings have been more fortunate. The chapter-house, on the east side of the principal cloister, has survived through its adaptation to modern domestic uses, and the ancient granary required no changes to secure its preservation. Mr. Aitken is, perhaps, a little rash in attempting to make a ground-plan of the abbey out of the slender materials that have been left; he would certainly have done better had he omitted the drawing of the Balmerino Spanish chestnut, where he is obviously *ultra crepidam*.

Lindores is as rich in historic associations as it is poor in architectural remains. The abbey, founded in 1178 by David, Earl of Huntingdon, brother of William the Lion, was a richly-dowered house, and stood in the fertile plain east of the town of Newburgh. It was built in the form of a Greek cross, and the design may perhaps have been suggested to the founder by some church he had visited during the Third Crusade. Within its walls Wallace sought repose after the battle of Earnside, and the stone coffins which have been exhumed enclosed, it is thought, the remains of David, Duke of Rothsay, who was murdered in Falkland Palace, and of one whom Mr. Aitken rather vaguely terms "the monastic Brother and Peer of the realm, Earl Douglas." The walls themselves are too ruinous to exhibit any details of architectural interest, and the only part of the fabric in any state of preservation is the vaulted slype between the south transept and the chapter-house.

We hope Mr. Aitken will be encouraged to prosecute his labours in other quarters, and give the results to the world in a volume equal in interest and in other respects to that we have described.

French Pottery. By PAUL GASNAULT and E. GARNIER. London: Chapman & Hall.

THIS little handbook is one of a series published under the auspices of the Committee of Council on Education, and refers to specimens in the South Kensington Museum. It is in the main a chronological account of the manufacture of faïence and porcelain in France, well written and admirably translated. We are a little surprised to find in the account of the Parisian manufactories no mention of Jacob Petit (1790 ——), whose modelling of fruit and flowers was certainly of distinctive excellence. And we think a word of gentle deprecation might have tempered the encomium on Lanfrey, the director of the Niederwitter manufactory, who certainly did not show good taste in inaugurating the "style of decoration which consisted in painting the whole surface to be decorated in imitation of veined pinewood, upon which was figured an engraving fixed on the wood by a pin. In order to make the illusion more complete, one angle of the engraving is sometimes turned in, and projects a shadow on the wood." Surely the force of foolishness can no further go. The *amende* is, however, made by the authors of the book, in general terms, on p. 175, and we hope readers will not overlook it. The illustrations to this little book are both numerous and good, and the copious lists of "marks" are very serviceable, and, with the one exception above noted, so far as we know, complete.

VARIORUM.

IN the third edition of "Hydropathy at Home," by Joseph Constantine (London: Simpkin, Marshall, & Co.; Manchester: John Heywood), there is a chapter on "Hydropathy for Horses," which will be read with interest by keepers of horses. The use of the Turkish bath for horses appears to have been found very satisfactory, during a period of eleven or twelve years, by Messrs. Pickford & Co., the well-known carriers, in their hospital for horses at Finchley. Encouraged by this success, the Great Northern Railway Company have fitted up a Turkish Bath at their new hospital for horses at Totteridge. A plan and description of this bath were given in the *Builder* for May 31st, 1884. The bath was fitted up by the author of the book now under notice. Mr. Constantine will be well known to many of our readers as the patentee of the Convoluted Stove, which is used for the heating. The work also includes a chapter on the ventilation of stables and cattle-sheds.——The tenth volume of "Proceedings of the Association of Municipal and Sanitary Engineers and Surveyors," edited by Mr. Thomas Cole, Secretary of the Association (London: E. & F. N. Spon), contains several important papers on subjects of great practical value to all concerned in town improvements and sanitation, including street-cleansing and maintenance. The Association includes among its members the borough engineers and surveyors of all the principal towns in the kingdom, and the value and usefulness of the Association in affording means for an interchange of their experiences is shown by this volume of "Transactions"; still more so by the Index which it contains to the previous nine volumes. This Index has been prepared by Mr. S. S. Platt, Assoc.-M.Inst. C.E., Borough Surveyor of Rochdale, and will be found very useful by those in search of practical information on any of the subjects which come within the purview of a borough surveyor.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

JANUARY 19.

By H. BENINGFIELD.

Enfield Highway—Enclosures of freehold land, 10a. 1r. 18p.	£1,000

By GRAVES & SON.

St. Pancras—39 and 40, Goldington-street, and 24, Platt-street, 62 years, ground-rent 11*l*.	1,100
Highgate—40, Spencer-road, and 9, York-rise, freehold	1,020

JANUARY 20.

By WEATHERALL & GREEN.

Malden—"Lily Villa," with grounds of 2 acres, freehold	1,060

By DEBENHAM, TEWSON, FARMER, & BRIDGEWATER.

Commercial-road, E.—Nos. 36 and 38, freehold	7,050
34, Commercial-street, E., freehold	3,400
Thames Ditton—The detached freehold residence, "Brooklands"	2,000
Wimbledon—Primrose Cottage and business premises, freehold	750

JANUARY 21.

By BAXTER, PAYNE, & LEPPER.

Lewisham—46, 48, and 50, Court Hill-road, freehold	1,050
Orpington—Crofton-road, five freehold cottages	570
St. Mary Cray—Derry Downs, "Clyde Villa," freehold	350

By H. OUGHTON & SON.

Tottenham—2 and 3, Percy-cottages, freehold	430

JANUARY 22.

By R. W. MANN.

Strand—9, Buckingham-street, freehold	2,550

By GLASIER & SONS.

Putney—125, High-street, 68 years, ground-rent 7*l*.	1,780

By C. C. & T. MOORE.

Stratford—52 and 54, Hamfrith-street, freehold	865

JANUARY 23.

By ROBERT REID.

Shepherd's Bush—Ground-rents of 60*l*. a year, reversion in 77 years	1,260
Chelsea—36, Royal-avenue, 21 years, ground-rent 9*l*. 9s.	340
Fulham-road—An improved rental of 87*l*. 1s., term 21 years	740
Kensington—Improved ground-rents of 29*l*. 10s. 6d., term 64 years	575
Notting Hill—Improved ground-rents of 19*l*. 2s. 6d., term 64 years	370
Shepherd's Bush—Ground-rents of 26*l*. a year, reversion in 83 years	570
St. John's Wood—Ground-rents of 15*l*. a year, term 49 years	300
Kilburn—5, Lincoln-terrace, 75 years, ground-rent 10*l*.	165
Hendon—Mill Hill, a plot of freehold land	50

New Buildings for Gibraltar.—We understand that Messrs. W. H. Lascelles & Co., of Bunhill-row, are about to erect a large building comprising assembly halls and Masonic rooms at Gibraltar. The work will be carried out under the direction of the architect, Mr. C. H. Driver, of 5, Victoria-street, Westminster. The list of tenders for the work will be found in another column.

MEETINGS.

SATURDAY, JAN. 31.

Royal Institution.—Dr. Waldstein on "Greek Sculpture from Pheidias to the Roman Era." III. 3 p.m.
St. Paul's Ecclesiological Society.—Annual Meeting. 2·30 p.m.

MONDAY, FEB. 2.

Society of Engineers.—Address by the President, Mr. Charles Gandon. 7·30 p.m.
Royal Institute of British Architects.—Mr. M. B. Adams on "Architectural Drawing." 8 p.m.
Clerks of Works' Association (31, Spring Gardens).—Monthly Meeting, 7 p.m.
Parkes Museum.—Meeting of Members only. 5 p.m.
Society of Arts (*Cantor Lectures*).—Professor George Forbes on "The Distribution of Electricity." I. 8 p.m.

TUESDAY, FEB. 3.

Society of Biblical Archæology.—(1) "Notes on the Antiquities from Bubastis in the collection of Mr. F. G. Hilton Price, F.S.A." (2) Professor A. H. Sayce, "On Some Karian Inscriptions." 8 p.m.
Institution of Civil Engineers.—Mr. D. S. Smart on "The Design and Construction of Steam Boilers." 8 p.m.

WEDNESDAY, FEB. 4.

British Archæological Association—(1) The Rev. G. F. Browne, M.A., on "The Interlaced Cross at Leeds." (2) Mr. J. W. Grover, F.S.A., on "The Old Registers of Clapham Parish. 8 p.m.
Society of Arts.—Mr. Charles G. Leland on "Education in Industrial Art." 8 p.m.
Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting. 8 30 p.m.

THURSDAY, FEB. 5.

Royal Archæological Institute.—(1) "Pierres à Bassins," by Admiral Tremlett. (2) "Notes on Screen in Sandridge Church, Herts," by Mr. Somers Clarke. 4 p.m.
London Institution.—Sir John Lubbock on "Leaves." 5 p.m.
Society of Antiquaries.—8.30 p.m.
St. Paul's Ecclesiological Society.—A paper by Mr. H. Roumieu Gough. 7.30 p.m.
Society of Arts (*Howard Lectures*).—Mr. W. Anderson on "The Conversion of Heat into Useful Work." VI. 8 p.m.

FRIDAY, FEB. 6.

Architectural Association.—Mr. A. Young on "Farm Buildings." 7.30 p.m.
University College.—Professor C. T. Newton on "Greek Inscriptions." III 4 p.m.

SATURDAY, FEB. 7.

Association of Public Sanitary Inspectors.—Captain Douglas Galton on "The Purity of Air in Towns." 6 p.m.

Miscellanea.

Fresco Paintings at Fingringhoe.—Mr. Charles Golding writes to the *Essex Standard*:—Upon examination of the interior of the Parish Church of St. Andrew, Fingringhoe, since the earthquake, with the intention of re-seating and benching it, it has been found that the walls in many parts have been richly ornamented. I endeavoured last week to make a careful survey of them, and find that though in some instances at least three or four coats of Churchwarden's whitewash have been used to cover them up, yet by removing the same slowly and carefully much may be observed. Near the South Porch entrance, on each side of the arch from the south aisle to the nave, and exactly in juxtaposition to where the font stands, and which formerly was probably the baptistery, on the west arch is a full-length figure, apparently of the Blessed Virgin, with nimbus on head, and holding an orb and cross in her hand. Above appears an angel or cherub, having two wings, and holding above the Virgin's head a scroll, bearing a sentence upon it, now partially indistinct, but evidently extending the width of the fresco. The letters are in some instances picked off. However, as near as I could read it, it is,—

"Ih . - conso - ap . . . - pict . . . - cælo - fines."

But I would not undertake to say this is literally correct. Directly opposite, on the north arch, is another fresco, apparently of St. John the Baptist,—evidently a person arising from what may be termed a pool or basin of water. In the centre aisle, immediately at entering is a rich and highly embellished fresco (or at least, has been), the background bearing diaper-work of green and gold, interspersed alternately with spangles, stars, and initials "M," and this figure has been the representation of some Saint, and on part of the scroll yet remaining I thought I could discern "Luci," possibly for Saint Lucy the Virgin. Over the chancel arch, and in other parts of the church, is to be seen much decoration of the Jacobean period.

The Sanitary Assurance Association.—At a special meeting of the Executive Council of the Association, at the office, 5, Argyll-place, W., on Monday last, Sir Joseph Fayrer, F.R.S., in the chair, a vote of condolence with the family and friends of the late Mr. John Whichcord, F.R.I.B.A., who was one of the earliest members of the Honorary Council of the Association, was passed.

Hornsey.—The Church of the Holy Trinity, Stroud-green, Hornsey, has just been completed, having been extended towards the west nearly three bays of the nave and aisles, increasing the total internal length by 37 ft. The older part was consecrated on December 31st, 1880. The nave is 35 ft. wide, with lean-to aisles 5 ft. 6 in. wide (both in the clear), and there is a very lofty clearstory. There is a spacious west gallery, 22 ft. long east to west, the front of brick having ornamental circular panels with a stone coping, and carried on three chamfered arches, supported by coupled Forest of Dean stone shafts. Behind the latter are two arches from east to west, built in order to shorten the bearing of the wood joists carrying the gallery floor. Access to the latter is obtained by a lofty staircase-porch terminated semi-octagonally towards the north. Ornamentally-treated wooden lobbies with swing doors serve to keep away draughts from the entrances to the north and west, and to the gabled south-west porch, which is of unusually large dimensions, as it constitutes the principal approach to the church. It has a lofty moulded and cusped outer stone archway and open fir timber roof with arched braces. At the west end of the nave is a semi-circular-ended baptistery, with a boarded and panelled ceiling. In the upper part of the west gable is a vesica window, over which, carried on massive stone corbels, stands the octagonal stone bell-turret, containing a bell of about 8½ cwt., from the foundry of Messrs. Warner & Sons. The increased accommodation in the church will be for 430 persons. The architect is Mr. B. Edmund Ferrey, F.S.A., who designed and superintended the older portion of the church; and the contractors are Messrs. Mattock Bros., of Isledon-road, Finsbury Park. The expenditure on the recent works has been about 3,500*l.* The church will now accommodate 1,132 persons.

British Archæological Association.—At the meeting of this Association on the 21st inst., Mr. G. R. Wright, F.S.A., in the chair, Mr. Worthington Smith exhibited a dagger of the Bronze period, found at Ruthin, 20 ft. below the surface, in a bed of peat. Mr. Cecil Brent, F.S.A., described a series of double-handled vessels showing a curious similarity of form, although the examples exhibited were of very varying ages and nationalities, there being examples of Etruscan and Roman wares, some of later date and some of modern times. He exhibited also portions of an ancient manuscript, containing the service of St. Agatha's Day. Mr. Loftus Brock, F.S.A., exhibited a curious collection of articles found at Aldgate, which showed the progress of the City. A paper, by Mr. C. Lynam, on the inscription on the Cross at Carew, was then read, in the absence of the author, by Mr. W. de Gray Birch, F.S.A. The cross, which is 14 ft. 1½ in. high, stands by the roadway, the upper portion being in a separate stone to the lower, to which it is mortised. It is covered with interlaced work, there being no animals in the design. The inscription has been variously read by Professors Westwood and Rees, and by Hübner. At the conclusion of the paper, Mr. Birch proceeded to show that the inscription was not Latin, as had been believed, but British. The inscription, which is of the eighth or ninth century, occurs on a small slab, forming a portion of the design. A similar one, intended probably for an inscription, remains as originally formed. A paper was then read on St. Milburga of Wenlock, by Mr. H. Syer Cuming, F.S.A. (Scot.). The paper was illustrated by a clever drawing, by Mr. Watling, from a fifteenth-century painting, formerly in a church, but which has now passed into private possession.

The Parkes Museum.—The Council have received a number of interesting articles and models from the Japanese section of the Health Exhibition, and at the special request of the Japanese Commissioner they have sent a large case of selected duplicates from the museum to the Home Department at Tokio. According to the *Times*, the books in the health section of the Health Exhibition library, consisting of about 1,500 volumes, have been presented to the Museum. The library of the Museum at 74A, Margaret-street, already contains a large collection of standard works on sanitary science, and a very complete collection of reports of medical officers of health over the whole country. The council have made special arrangements for the admission of students to the library and reading-room.

Steel Bridge in South Africa.—The first steel bridge in South Africa, and the first bridge in the Orange Free State, was recently built over the Caledon River between Smithfield and Rouxville. It is of the bowstring type, is in four spans 650 ft. long, and the total length, including approaches, is 1,200 ft. It stands 50 ft. above low-water mark, and the lowest part of the superstructure is 10 ft. above the highest water mark ever known. The piers are 12 ft. by 13 ft., are of stone masonry laid in cement, and rest on solid rock. The whole weight of the superstructure is 350 tons, including all necessary timber. It was erected on a staging made of steel wire ropes, 1 in. in diameter, stretched from pier to pier, with wooden trestles on top to make up for the sag caused by the weight of each span. This method worked admirably, and the structure was completed without hitch or accident of any kind. The bridge cost 160,000 dols., including 5,500 dols. duty paid to the Colonial Government for material. It was built by Messrs. Scrimgeour Bros., of Port Elizabeth.—*Scientific American.*

District Surveyorship, Deptford.—Mr. Augustus W. Tanner, District Surveyor for Hatcham, of the firm of Messrs. Romaine-Walker & Tanner, architects, has been appointed by the Metropolitan Board of Works to act as temporary substitute in the District of St. Nicholas, Deptford, and the portion of St. Paul's, in Kent, rendered vacant by the death of Mr. John Whichcord, F.S.A., past President of the Royal Institute of British Architects.

COMPETITIONS, CONTRACTS, & PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

COMPETITIONS.

Nature of Work.	By whom required.	Premium.	Designs to be delivered.	Page.
Town-hall Alterations	Borough of Brecon Town Council	20*l.*	Feb. 9th	i.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Road-making and Paving Works	Fulham Board of Wrks	*Official*	Feb. 4th	ii.
Erection of School and Teacher's Residence	Dagenham School Brd.	Jno. Hudson	do.	ii.
Works and Materials	Vestry, Parish of St. John, Hampstead	C. H. Lowe	do.	xx.
Sewerage Works; Machinery	Wednesbury Locl. Brd.	E. Pritchard	Feb. 5th	ii.
Ironwork for Bridges, Brooksby	Midland Railway Co.	A. A. Langley	Feb. 6th	ii.
Ironwork for Bridges, Bredon	do.	do.	do.	ii.
Ironwork for Bridges, Croxall	do.	do.	do.	ii.
Repairs, &c., to Premises, Whitecross-street	do.	do.	do.	ii.
Erection of New Station Buildings, Lifford	do.	do.	do.	ii.
Erection of New Station Bldngs, Pleasley, &c.	do.	do.	do.	ii.
Alterations and Repairs to Public-house	B. Young & Co. Hertfrd	C. A. Legg	do.	xx.
Fitting-up and Putting to Work Machinery, and Engineer's Work	Commissionrs of Public Baths, &c., Bermndsy	G. Elkington & Son	do.	ii.
Wrought-Iron Lattice Girder Highway Bridge, &c.	Property Com., King's Lynn Corporation	E. G. Mawbey	Feb. 7th	xx.
Road Materials	Com. of H.M. Works	*Official*	Feb. 9th	ii.
New Streets Works	Vestry of St. Giles, Camberwell	do.	do.	xv.
Erection of New Station, Blackburn	Lanc. and Yorks. Rail.	do.	do.	xv.
Paving and Sewerage Works	Willesden Local Board	O. Claude Robson	Feb. 10th	xx.
Granite Curb	East Ham Local Beard	W. H. Savage	do.	xv.
Making-up Margins of Roads	Tottenham Local Board	— De Pape	do.	xx.
Curb	Kent & Essex Land Co.		Feb. 11th	ii.
Erection of Engine and Boiler Houses, Chimney-Shaft, &c.	Proprietors of Barton Mills, Canterbury	J. G. Hall	do.	xv.
Constructing Precipitating Tank, &c.	Barking Town Locl Brd	*Official*	Feb. 12th	xx.
Erection of Turnstile House and Boxes	Wallasey Ferry Com.	A. Dowson	do.	xx.
Construction of Storm-water Outfall, &c.	Hove Commissioners	Ellice Clark	Feb. 13th	xx.
Sewerage Works	Walsall Town Council	Arden Hardwicke	Feb. 14th	xx.
Erection of New Probate Registry, York	Com. of H.M. Works	*Official*	Feb. 16th	ii.
Brick Sewer, &c.	Birmngm. Pb. Wks Com.	W. S. Till	do.	xx.
Bricklayer, Mason, Carpenter's, &c., work, Darlington	North Eastern Railway	W. Bell	Feb. 18th	ii.
Glazed Stoneware Sewage Pipes & Gully Traps	Bath U. S. Committee	A. Mitchell	Feb. 23rd	xx.
Construction of Promenade Pier, &c. Ventnor	Ventnor Local Board	H. E. Wallis	do.	ii.
Erection in Masonry of Penwithers Viaduct	Great Western Railway	*Official*	Feb. 24th	ii.
Formation of a Lake, Southwark Park	Met. Board of Works	do.	do.	ii.
Law Courts and Offices	Nottingham Corporatn	Verity & Hunt	March 4th	xx.
Erection of New Workhouse	Gds. Fordingbridge Un.	Fred. Bath	March 10th	xx.
Taking-down and Rebuilding		R. W. Crawley	Not stated	ii.
Erection of Congregatnl Chapel, &c., Chesham		Habershon & Fawckner	do.	xx.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Surveyor and Inspector of Nuisances	Shepton Mallet Locl. Bd	100*l.*	Feb. 2nd	xviii.

TENDERS.

For assembly and Masonic rooms, Gibraltar. Mr. C. H. Driver, architect, 5, Victoria-street, Westminster:—

Holmes	£16,192 0 0
Gentry	13,470 0 0
Braid	12,607 0 0
Saunders	12,008 0 0
W. H. Lascelles & Co.*	11,587 0 0

* Accepted, subject to some modifications.

For new business premises on the Artillery Field Estate, Guildford, for Mr. Henry Stent. Messrs. Peak, Lunn, & Peak, architects:—

M. Wells & Co., Aldershot	£1,200 0 0
J. Bottrill, Reading	1,129 0 0
E. Elliott, Guildford	1,095 0 0
Downes & Hill, Guildford	1,080 0 0
Currington & Peto, Guildford	1,025 0 0
G. Strudwick, Guildford	990 0 0
G. & R. Smith, Guildford	925 0 0
Tribe & Robinson, Guildford	910 0 0
Tribe, Stoughton	895 0 0
T. E. Downes, Guildford (accepted)	887 0 0

Accepted for erection of stores, &c., Thornhill Grove, Lee, for Mr. W. Brown:—

D. & R. Kennard, Lewisham	£440 0 0

Accepted for erection of two shops, Blackheath, for Messrs. Brand & Jarvis:—

D. & R. Kennard, Lewisham	£1,400 0 0

For additional class-rooms at the South Norwood Schools' for the Croydon School Board. Mr. Robert Ridge, Surveyor to the Board, architect. Quantities by the architect:—

Barton	£559 10 0
Holl	525 0 0
Howell	495 0 0
Bryan	489 0 0
Wyatt	477 0 0
Coles	464 0 0
Smith & Bulled	454 0 0
Sedgwick	430 0 0
Marriage (too late)	420 0 0
Smith & Sons	411 0 0

For new bar to the Plough and Harrow, Bedford. Mr. Henry Young, architect and surveyor. Quantities supplied:—

J. P. White, Bedford	£177 0 0
S. Foster, Bedford	165 0 0
G. Haynes, Bedford	160 0 0

For dwelling-house at Woking Station, Surrey, for Mr. George Wright. Messrs. Peak, Lunn, & Peak, architects, Guildford:—

J. Whitburn, Woking	£722 0 0
J. Wilson, Woking Station	687 0 0
G. Shears, Woking Station	678 0 0
S. Woods, Weybridge	650 0 0
W. J. Butt, Woking Station	615 0 0
H. Ingram, Woking	595 15 10
A. A. Gale, Woking Station (accepted)	550 0 0

For the erection of show-rooms and warehouses, Kingstreet, Ramsgate, for Mr. W. P. Blackburn. Mr. E. L. Elgar, architect:—

Miller	£1,875	0	0
Smith	1,799	0	0
Martin	1,395	0	0
Forwalk	1,285	0	0
Port	1,280	0	0
Newby Bros. (accepted)	1,198	0	0

For making and sewering new roads, Cann Hall Estate, Stratford, E., for the Imperial Property Investment Company, Limited. Mr. G. H. L. Stephenson, surveyor:—

Walker	£4,929	0	0
Nowell & Robson	4,543	0	0
Pizzey	4,375	0	0
Adams	4,100	0	0
Cook & Co.	3,820	0	0
Wilson (accepted)	3,765	0	0

For pulling down and rebuilding No. 19, Ivy-lane, Newgate-street, for Mr. R. H. Abbott. Mr. William Smith, architect, 1, Gresham-buildings, E.C. Quantities by Mr. E. J. Pain:—

Goodman	£1,887	0	0
Shurmur	1,836	0	0
Woodward	1,795	0	0
Grover & Son	1,786	0	0
Durnford & Langham	1,749	0	0
Dixon & Co.	1,735	0	0
Stevens Bros.	1,725	0	0
Anley	1,704	0	0
Mattock Bros.	1,691	0	0
Wilson	1,584	0	0
J. & J. Greenwood	1,583	0	0
Larke & Son	1,569	0	0
Richardson (accepted)	1,564	0	0

For the erection and completion of the new Thames Hotel at Maidenhead, for Messrs. Woodhouse & Deacon. Mr. R. E. Tyler, F.R.I.B.A., architect. Quantities supplied by Mr. Walter Barnett:—

Shurmur	£8,980	0	0
Boyce	8,883	0	0
Aviss & Co.	8,365	0	0
Silver, Son, & Filewood	8,264	0	0
Morter	8,150	0	0
Woodbridge	8,100	0	0
Adamson & Sons	7,998	0	0
Bolding	7,994	0	0
Watson	7,936	0	0
Laurance & Sons	7,749	0	0
J. O. Richardson	7,600	0	0

For the erection and completion of a house and stables at Sunningdale, Berks, for Captain W. Oughton Giles. Mr. R. E. Tyler, architect. Quantities by Mr. W. Barnett:—

J. O. Richardson (accepted)	£2,129	0	0

[No competition.]

For private street works, for the Barking Town Local Board. Mr. C. J. Dawson, surveyor:—

Catley	£2,145	0	0
Beodel Bros.	1,913	13	0
G. Bell	1,897	14	0
Rutty	1,831	0	0
Mowlem & Co.	1,763	0	0
Cook & Co. (accepted)	1,745	10	0

[Surveyor's estimate, 1,787*l.* 12s. 1d.]

SIR,—In your issue of January 17th you published a list of tenders for Egham Schools, Mr. E. Harnor, A.R.I.B.A., No. 8, John-street, Adelphi, architect. After publishing the tenders, the School Board Committee invited the builders sending in the three lowest tenders to send in a tender of the amount they would be prepared to reduce their original estimates if certain scheduled variations and reductions were carried out.

Quantities for both the original plans and the alterations were supplied to the builders tendering by Messrs. Byrne & Wilmot, surveyors, of London and Windsor. The following shows the result:—

	Original Estimate.	Reduction.	Final Estimate.
Hann & Co., Windsor	£3,479	£200	£3,279
Simpson, Egham	3,615	400	3,215
Oades & Sons, Egham	3,655	305	3,350

Windsor. HANN & Co.

SPECIAL NOTICE.—Lists of Tenders frequently reach us too late for insertion. They should be delivered at our Office, 46, Catherine-street, W.C., *not later than Four p.m.* on THURSDAYS.

TO CORRESPONDENTS.

J. M.—W. R.—E. B.—S. & C.—A. B. P. (thanks: it has been attended to).—W. W. B.—J. E. B.—R. H. C.—W. H. O.—R. P. (write to the Secretary of the Surveyors' Institution).—R. D. & Co.—G. R. C.—J. W. W. W.—G. H. B.—J. L. (we cannot answer such questions. Consult a solicitor).—S. Y. & Sons (should send amount).—A. W. R. S.—W. & B.

All statements of facts lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read a public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

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From WALTER REID, Esq., M.D, &c. (who conducted TESTS for GOVERNMENT.)

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